Self Diagnosis
Supported model

SERVICE MANUAL

BX1S CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-SW21M20	RM-GA002	South Africa	
KV-SW21M80	RM-GA002	Pakistan	
KV-SW21M95	RM-GA002	Russia	SCC-V13N-A

MODEL	COMMANDER	DEST.	CHASSIS NO.

(Except KV-SW21M95)

RM-GA002

(KV-SW21M95)

TRINITRON® COLOR TV

SONY®

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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self diagnostic function. If an error occurs, the STANDBY (⏻) indicator will automatically begin to flash. The number of times the STANDBY (⏻) indicator flashes translates to a probable source of the problem. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

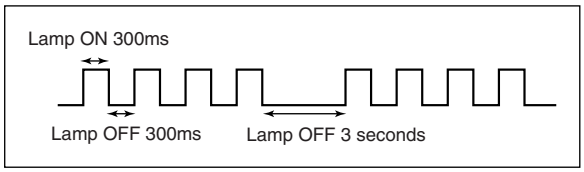
1. DIAGNOSTIC TEST INDICATORS

When an errors occurs, the STANDBY (⏻) indicator will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the indicator will identify the first of the problem areas.

Result for all of the following diagnosis items are displayed on screen. No error has occurred if the screen displays a "0".

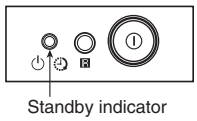
Diagnosis Item Description	No. of timer STANDBY (⏻) indicator flashes	Diagnostic Result on screen display	Probable Cause Location	Detected Symptoms
No Power	Does not light	–	• Power cord is not plugged in. • Fuse is burned out (F600) A board.	• Power does not turn on. • No power is supplied on TV. • AC Power supply is faulty.
+B overcurrent (OCP)	2 times	2:0 or 2:1 ~ 255	• H OUT (Q805) is shorted. (A board) • IC751 is shorted. (C board)	• Power does not turn on. • Load on power line is shorted.
V-Protect (OVP)	4 times	4:000 or 4:1 ~ 255	• +13V is not supplied. (A board) • IC804 is faulty. (A board)	• Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is shorted.
IK (AKB)	5 times	5:0 or 5:1 ~ 255	• Video OUT (IC1545) is faulty. (A board) • IC001 is faulty. (A board) • Screen (G2) is improperly adjusted.	• No raster is generated. • CRT Cathode current detection reference pulse output is small.
Power supply NG (+5V) for Video Processor	8 times	8:0 or 8:1 ~ 255	• IC604 faulty. • IC602 faulty.	• No power supply to CRT ANODE. • No RASTER is generated.

2. STANDBY INDICATOR BLINKING PROCESS

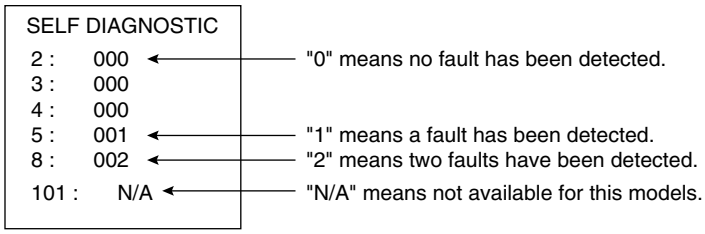


The example above represents for 4 times blink

3. STANDBY INDICATOR ON TV FRONT PANEL



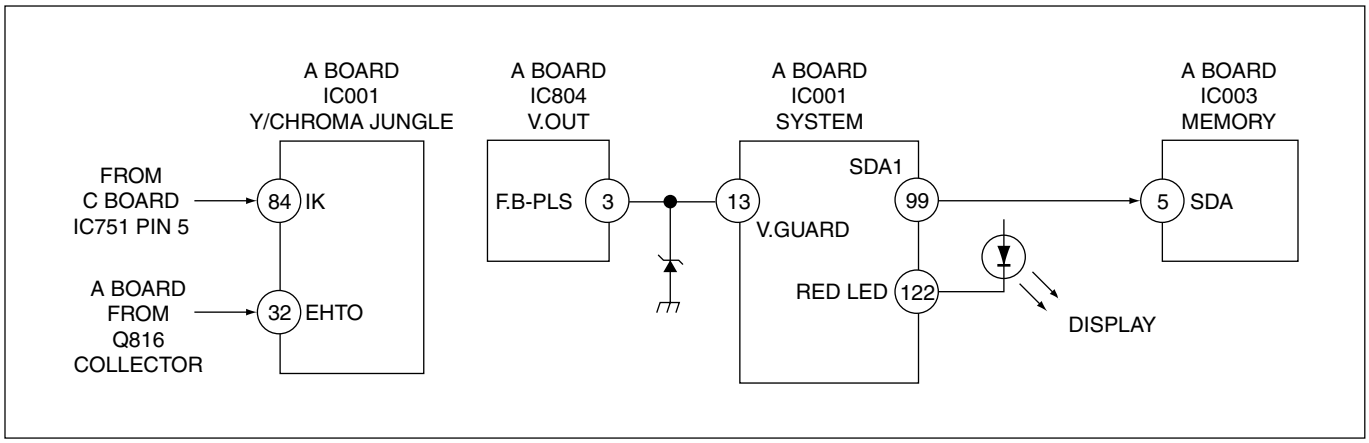
4. SELF DIAGNOSTIC SCREEN DISPLAY



5. HANDLING SELF DIAGNOSTIC SCREEN DISPLAY

No.	Description	Method
1.	Display self diagnostic screen	Display → Channel 5 → Volume − → Power / TV *Note: The above must be performed while TV is on standby mode.*
2.	Stop standby flash	i) Turn off power switch on main. ii) Unplug power cord from the outlet.
3.	Clear fault result	Channel 8 → 0 *Note: Diagnostic results display on screen is not automatically cleared. Therefore, clear result after completion of repair.*
4.	Quit self diagnostic screen	Turn off power switch of remote commander or main unit.

6. SELF-DIAGNOSTIC CIRCUIT



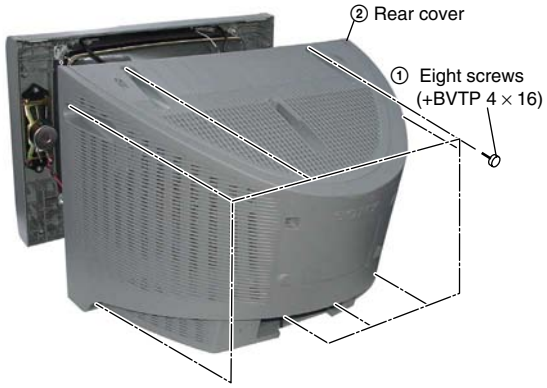
+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135V) line is detected by pin 32 of IC001 (A board). If the voltage of pin 32 of IC001 (A board) is more than 4V, the unit will automatically go to standby.
V-PROTECT	Occurs when an absence of the vertical deflection pulse is detected by pin 13 of IC001 (A board).
IK (AKB)	If the RGB levels* do not balance within 15 sec after the power is turned on, this error will be detected by IC001 (A board). TV will stay on, but there will be 5 times LED blinking.
POWER SUPPLY NG (+5V) for VIDEO PROCESSOR	Occurs when IC001 internal HV protect detects an abnormal H-Pulse (frequency) due to improper power supply to IC001. TV cuts off high voltage power of anode CRT. No picture will be detected. eg: IC602, IC604 go faulty.

* (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

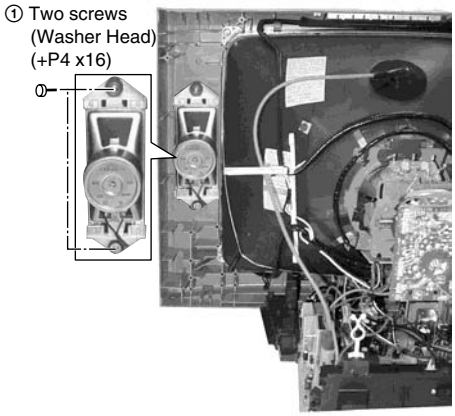
SECTION 1
DISASSEMBLY

1-1 3D BOX REMOVAL (KV-SW21M95)

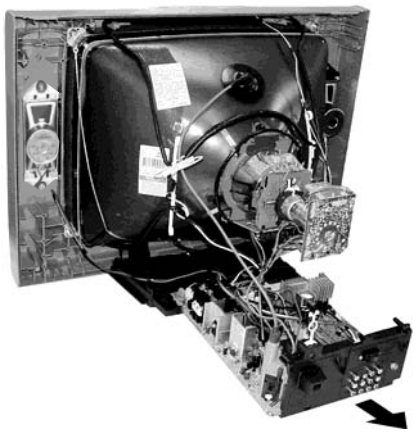
1-2 REAR COVER REMOVAL



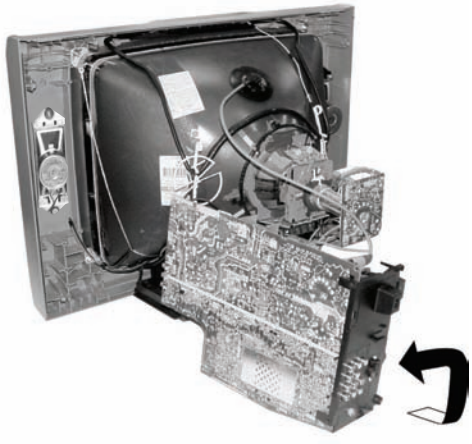
1-3. SPEAKER REMOVAL



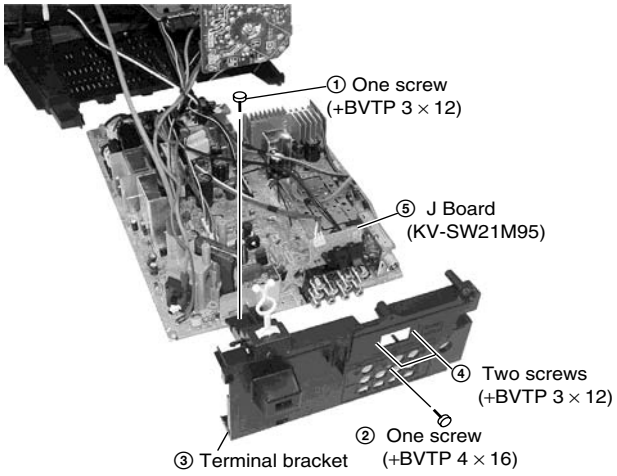
1-4. CHASSIS ASSY REMOVAL



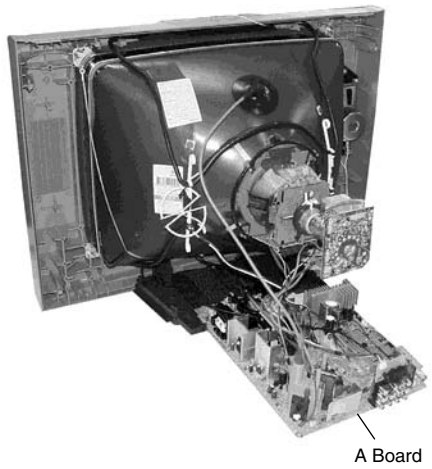
1-5. SERVICE POSITION



1-6. TERMINAL BRACKET AND J BOARD REMOVAL



1-7. A BOARD REMOVAL

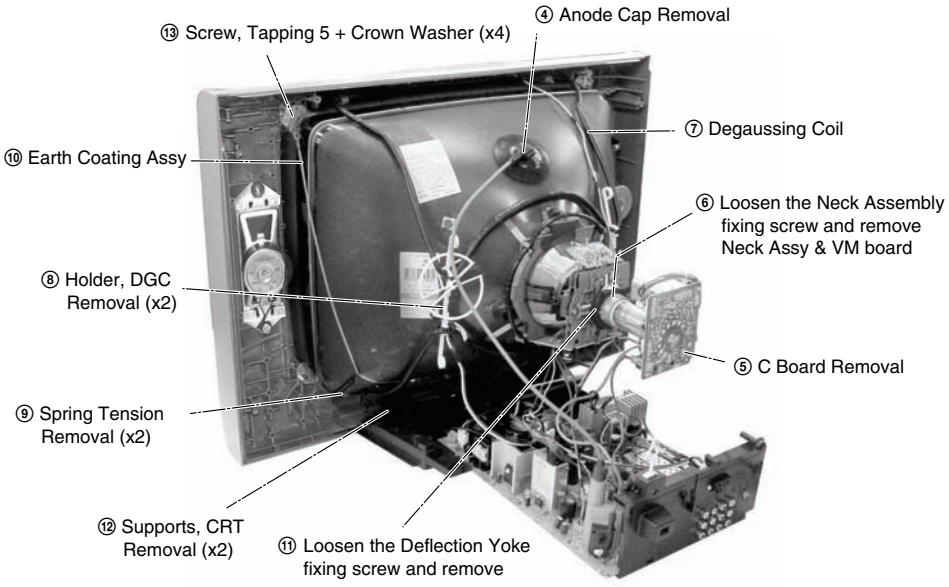


1-8. PICTURE TUBE REMOVAL

Note:

- The picture tube is upside down for (KV-SW21M20(South Africa)) only and the position for the anode cap and tension springs are changed accordingly.
- Please make sure the TV set is not in standing position before removing necessary CRT support located on bottom right and left.

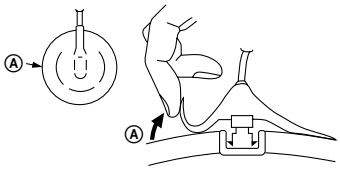
1) Remove the Rear Cover.
2) Unplug all interconnecting leads from the Deflection Yoke, Neck Assy, Degaussing Coils and CRT grounding strap. Remove Chassis Assy.
3) Place the TV set with the CRT face down on a cushion (jig).



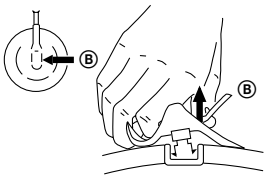
• REMOVAL OF ANODE-CAP

Note:
- After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

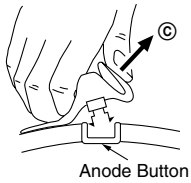
• REMOVING PROCEDURES



① **Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.**



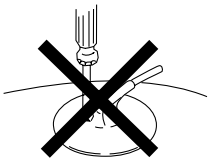
② **Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.**

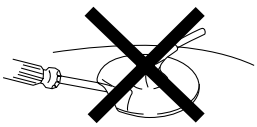


③ **When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.**

• HOW TO HANDLE AN ANODE-CAP

① **Do not damage the surface of anode-caps with sharp shaped objects.**
② **Do not press the rubber too hard so as not to damage the inside of anode-cap.**
A metal fitting called the shatter-hook terminal is built into the rubber.
③ **Do not turn the foot of rubber over too hard.**
The shatter-hook terminal will stick out or damage the rubber.





SECTION 2
SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

The controls and switch should be set as follows unless otherwise noted:

Picture control ..... NORMAL
Brightness control ..... NORMAL

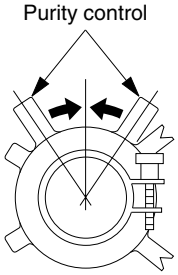
Perform the adjustments in order as follows:
1. Beam Landing
2. Convergence
3. Focus
4. G2 (SCREEN)
5. White Balance

Note: Test Equipment Required
1. Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital Multimeter
5. Oscilloscope
6. Landing Checker
7. XCV Adjuster

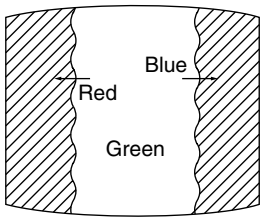
Preparation :
- Feed in the white pattern signal.
- Before starting, degauss the entire screen with the degausser.
- In order to reduce the geomagnetism on the set's picture tube, face it east or west.

2-1. BEAM LANDING ADJUSTMENT

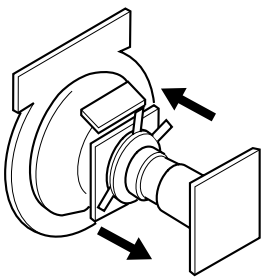
1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown below.



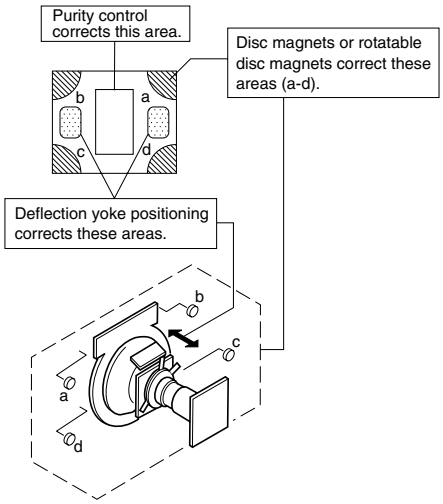
3. Set the raster signal of the pattern generator to green.
4. Move the deflection yoke (DY) backward and adjust the purity control so that green is in the center and blue and red are at the sides evenly.



5. Then move the DY forward and adjust so that the entire screen becomes green.



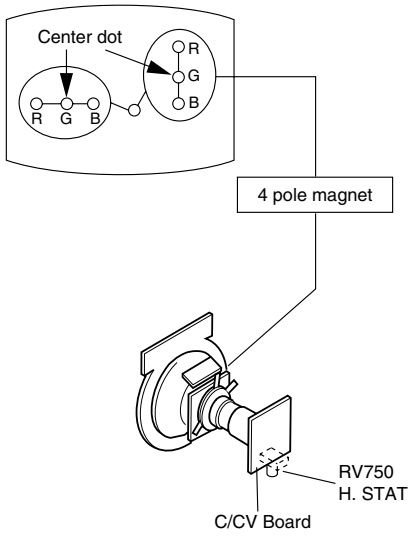
6. Now switch over raster signal to red then blue and confirm the condition.
7. When the position of the DY is determined, tighten it with the DY mounting screw.
8. If the beam does not land correctly in all corners of the screen, use magnet disc to correct it.



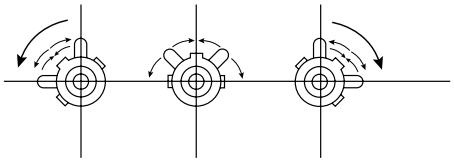
2-2. CONVERGENCE ADJUSTMENT

Preparation :
- Before starting, perform FOCUS adjustment.
- Picture mode STANDARD.
- Receive dot/cross hatch pattern.

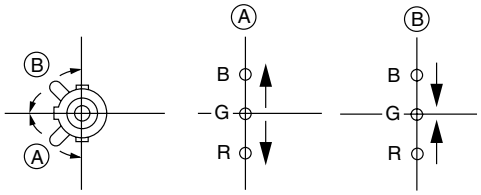
a) Vertical Static Convergence



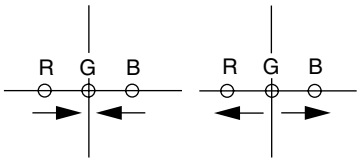
1. (Moving vertically), adjust the 4 pole magnet to converge red, green and blue dots in the center of the screen.
2. Tilt the 4 pole magnet and adjust static convergence to open or close the 4 pole magnet.



3. When the 4 pole magnet is moved in the direction of arrow Ⓐ and Ⓑ, the red, green and blue dots moves as shown below:

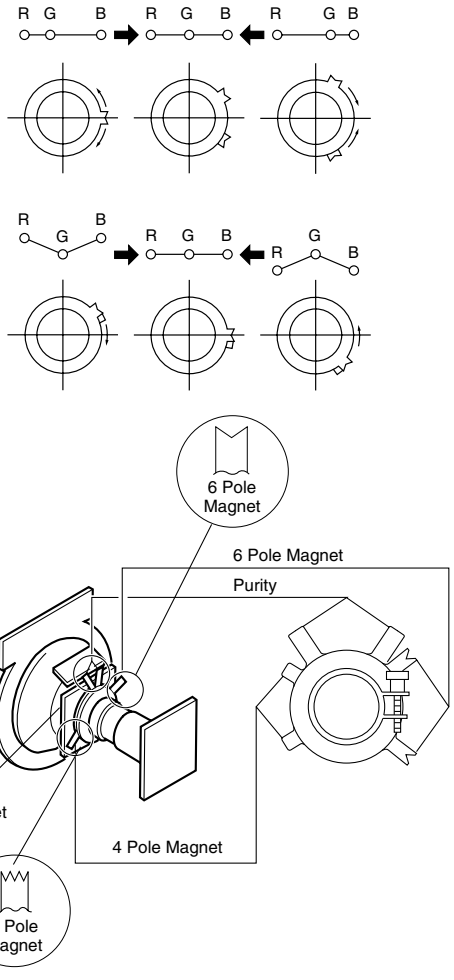


Moved RV750 (H.STAT)



b) Horizontal Static Convergence

If the blue dots does not converge with the red and green dots, use the 6 pole magnet to adjust in the manner described below.



c) Convergence Rough Adjustment

Preparation :
- Before starting this adjustment, adjust the horizontal and vertical static convergence.

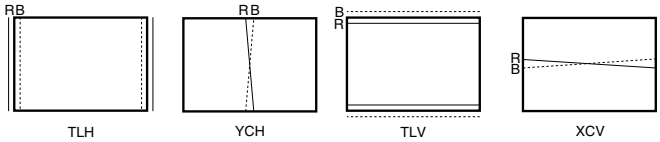
Input cross hatch pattern.

i) TLH
Adjust the horizontal convergence of red and blue dots by inserting TLH Correction Plate to the DY pocket (left or right).

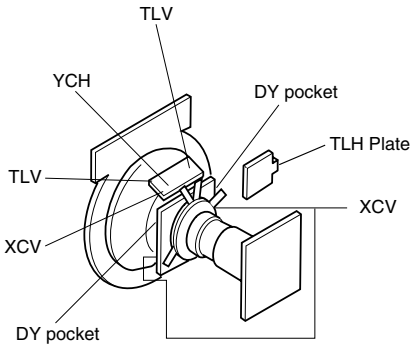
ii) YCH
Adjust YCH to balance Y axis.

iii) TLV
Adjust the vertical convergence of red and blue dots.

iv) XCV
Adjust XCV to balance X-axis.

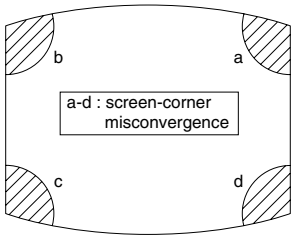


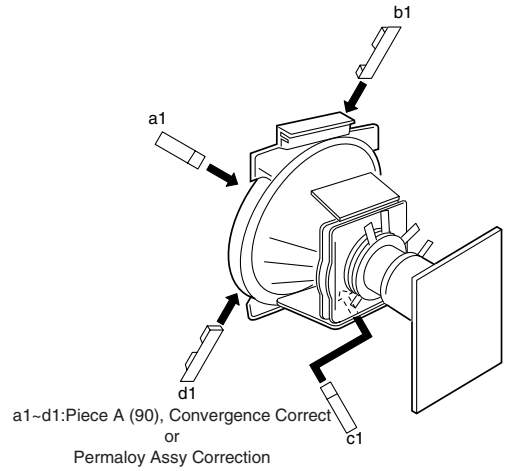
ON DY:



d) Screen Corner Convergence

Affix a Piece A (90), Convergence Correct/Permaloy Assy Correction to the misconverged areas.



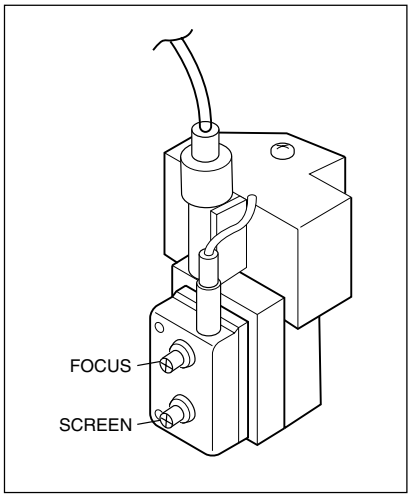


a1~d1:Piece A (90), Convergence Correct
or
Permaloy Assy Correction

2-3. FOCUS ADJUSTMENT

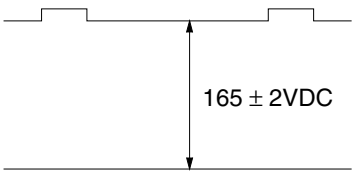
FOCUS adjustment should be completed before W/B adjustment.

1. Receive digital monoscope pattern.
2. Set Picture Mode to "DYNAMIC".
3. Adjust focus VR to obtain a just focus at the center of the screen.
4. Change the receiving signal to white pattern and blue back.
5. Confirm magenta ring is not noticeable. In case magenta ring is obvious, then adjust FOCUS VR to balance magenta ring and FOCUS.



2-4. G2 (SCREEN) ADJUSTMENT

1. Set the following condition:
   – Picture and Brightness to "STANDARD".
   – TV to Video mode.
   – WHBL 016 "RGBB" to 01
2. Connect R, G, B of the C/CV board cathode to oscilloscope.
3. Adjust Brightness to obtain the cathode value to the value stated below.



4. Adjust SCREEN VR on the FBT until the scanning line disappears.
5. Finally set WHBL 016 "RGBB" back to 00.

2-5. WHITE BALANCE ADJUSTMENT

1. Set to Service Mode.
2. Input white raster signal using signal generator.
3. Set the following condition:
   Picture "DYNAMIC", PICT 006 "WTS" to 00.
4. At Highlight condition, select WHBL 003 "GDRV" and 004 "BDRV" with [1] and [4] button of the remote commander then adjust the data with [3] and [6] button.
5. At Cutoff, select WHBL 000 "BKOR" and 001 "BKOG" and adjust the data.
6. Perform adjustment at Highlight and Cutoff condition until it reaches its target.
7. Write data into memory by pressing [MUTING] → [0].
8. Finally set PICT 006 "WTS" back to its original data.

SECTION 3
CIRCUIT ADJUSTMENTS

3-1. ADJUSTMENTS WITH COMMANDER

Service adjustments to this model can be performed using the supplied remote commander RM-GA002.

a. ENTERING SERVICE MODE

With the unit on standby

→ DISPLAY → 5 → VOL (+) → POWER

This operation sequence puts the unit into service mode.
This screen display is:

category	item no. in decimal	item name	service data in decimal	NVM NG	service command	field frequency	channel no./ video input name
GEOM	006	HSIZ	031	■	SERVICE	60	S VIDEO 1

release ID	software version	service data in binary	reserved for factory	color system	power on time (decimal)
SUS01	0.69U	0001 1111	FF FF	NTSC3	65535

	Flash DCXO	Status Byte #1 SSD	Status Byte #2 SSD
111 11 11 1 7 11	FG	xy 111 000000	000000

VDSP_C Flag
CO_LOCKED
VDSP
Detected Stereo Type (Direct Value from CZ_ Stereo_Mode)

S : for Sony
A : Aiwa
U S : US/Latin/Taiwan
E U : Europe
G A : General Area
J P : Japan
0 1 : serial no. of the M/P release for each destination

111 — Needed for Nicam DCXO aligment Purpose

xy — Value of x = 0 - Unknown, 1 - BTSC, 2 - A2, 3 - NICAM, 4 - KOREAN, 5 - Japan, 6 - AV Stereo
Value of y = 0 - Mono, 1 - Stereo, 2 - Bilingual, 4 - SAP/Single

b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press POWER button on the commander), then press POWER button again, hereupon it becomes TV mode.

c. METHOD OF WRITE INTO MEMORY

1. Set to Service Mode.
2. Press 1 (UP) and 4 (DOWN), to select the adjustment item.
3. Change item by pressing 3, 6.
4. Press MUTING button to indicate WRITE on the screen.
5. Press 0 button to write into memory.

1, 4	Select the adjustment item.
↓	
3, 6	Raise/lower the data value.
↓	
MUTING	Writes.
↓	
0	Executes the writing.

d. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2. Turn the power switch ON and set to Service Mode.
3. Call the adjusted items again to confirm adjustments were made.

e. OTHER FUNCTION VIA REMOTE COMMANDER

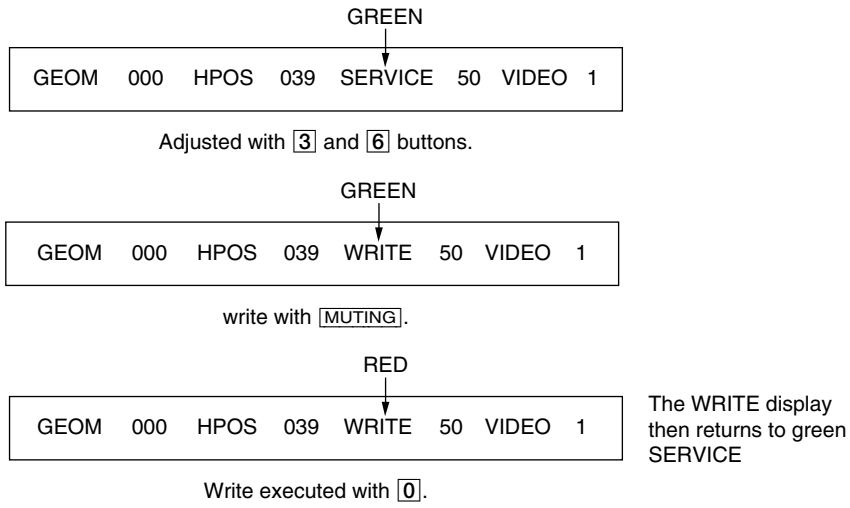
7, 0	All the data becomes the values in memory.
8, 0	All user control goes to the standard state.
Display, 0	Service data initialization (Be sure not to use usually.)
2, 5	Select Device or Category

3-2. ADJUSTMENT METHOD

Item Number 000 HPOS
This explanation uses H POSITION as an example.

1. Select "000 HPOS" with the 1 and 4 buttons, or 2 and 5.
2. Raise/lower the data with the 3 and 6 buttons.
3. Select the optimum state. (The standard is IF for PAL reception.)
4. Write with the MUTING button. (The display changes to WRITE.)
5. Execute the writing with the 0 button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)

Example on screen display :-



Use the same method for all Items. Use 1 and 4 to select the adjustment item, use 3 and 6 to adjust, write with MUTING, then execute the write with 0.

Note : 1. In WRITE, the data for all items are written into memory together.
2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.

Adjustment Item Table

NOTE

a) In the initial value (detailed) column, the data after the slash mark ("/") refers to NTSC model data.
No ("/") means data is common for Multi and NTSC model.
b) Item remarked "*" and "**", please refer page 25 for the data.
c) shaded items are no data.
d) Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
e) Note for the Different Data those are the standard data values written on the microprocessor. Therefore, the data values of the models are stored respectively in the memory.
In the case of a device replacement, adjustment by rewriting the data value is necessary for some items.
f) Multi ver 6.16, NTSC ver 6.16N.

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)			
Category	No.	Name	Dec	Dec					(4:3) 50	(4:3) 60	(4:3) w50	(4:3) w60
GEOM	000	HPOS	031	063	Horizontal Shift (HS)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>	TV-Processor		40/31	45/31	42/31	42/31
	001	HPAR	031	063	Horizontal Parallelogram	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	002	HBOW	031	063	Horizontal Bow	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	003	VLIN	031	063	Vertical Linearity	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	004	VSCR	031	063	Vertical Scroll	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	005	HSIZ	031	063	EW Width (EW)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			26/31	28/31	25/31	25/31
	006	EWPW	031	063	EW Parabola/Width (PW)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			24/31	31	31	31
	007	UCOP	017	063	EW Upper Corner Parabola	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31/17	31/17	31/17	31/17
	008	LCOP	017	063	EW Lower Corner Parabola	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31/17	31/17	31/17	31/17
	009	EWTZ	031	063	EW Trapezium	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	010	VSLP	031	063	Vertical Slope (VS)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			31	31	31	31
	011	VSIZ	015	063	Vertical Amplitude	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			24/15	26/15	15	15
	012	SCOR	014	063	S-Correction (SC)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			25/14	25/14	25/14	25/14
	013	VPOS	031	063	Vertical Shift (VSH)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			39/31	28/31	31	31
	014	VZOM	031	063	Vertical Zoom (VZ)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>						
	015	HBL	000	001	RGB Blanking Mode	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			01	01	01	01
	016	WBF	007	015	Timing of Wide Blanking (WBF)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			07	07	07	07
	017	WBR	007	015	Timing of Wide Blanking (WBR)	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>			10	10	10	10
	018	SBL	000	001	Service Blanking	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>		00				
	019	COPY	000	001	Copy the GEO data to all 50/60Hz NVM area	<4:3 Screen 50/60/w50/w60> <16:9 Screen (50/60)*(WZ/N/F/Z)>		X/00				

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)													
Category									Col Temp (COOL other)	Col Temp (WARM other)	Col Temp (NEUTRAL other)	Col Temp (COOL YUV)	Col Temp (WARM YUV)	Col Temp (NEUTRAL YUV)	Col Temp (COOL RGB)	Col Temp (WARM RGB)	Col Temp (NEUTRAL RGB)	YUV	Pic mode 0	Pic mode 1	Pic mode 2	TV	Video
WHBL	000	BKOR	031	063	Black Level Offset R (OFB = 00), Offset B (OFB = 01)	col temp (HIGH/LOW/Normal)*(UV/RGB/Others)	TV-Processor		31	31	31	31	31	31	31	31	31						
	001	BKOG	031	063	Black Level Offset G	col temp (HIGH/LOW/Normal)*(UV/RGB/Others)			31	31	31	31	31	31	31	31	31						
	002	RDRV	037	063	White Point R	col temp (HIGH/LOW/Normal)*(UV/RGB/Others)	TV-Processor		37	37	37	37	37	37	37	37	37						
	003	GDRV	037	063	White Point G	col temp (HIGH/LOW/Normal)*(UV/RGB/Others)			31/37	31/37	31/37	31/37	31/37	31/37	31/-	31/-	31/-						
	004	BDRV	037	063	White Point B	col temp (HIGH/LOW/Normal)*(UV/RGB/Others)			31/37	31/37	31/37	31/37	31/37	31/37	31/-	31/-	31/-						
	005	LPG	000	001	RGB Gain Preset	none		01															
	006	PGR	031	127	Preset Gain R (PGR)	none		40															
	007	PGG	031	127	Preset Gain G (PGG)	none		40															
	008	PGB	031	127	Preset Gain B (PGB)	none		40															
	009	GNOF	000	015	Preset Gain Offset	none	CCC loop	15															
	010	SBRT	031	063	Sub-Brightness	Others/RGB/YUV												31				31	31
	011	SBRO	000	003	Sub-Brightness Offset (Intelligent Pic)	none		00															
	012	EGL	000	001	Enable Gain Loop in CCC System	none		00															
	013	SGL	000	003	Selection of High Current in CCC System	none		00															
	014	AKB	000	001	Black Current Stabilization	none		00															
	015	CBS	000	001	Control Sequence of Beam Current Limiting	none		00															
	016	RGBB	000	003	RGB Blanking	none		00															
	017	BLBG	000	001	Blanking of Blue & Green Output	none		00															
	018	OFB	000	001	Black Level Offset Blue	none		01															
	019	NSBR	000	015	Non Standard Brightness Offset	none		00															
	020	WBP	000	003	Color Temp Setting (0:High, 1:Normal, 2,3:Low)	Picture Mode													00	01	01		

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)															
Category	No.	Name	Dec	Dec					YUV	50 pal (TV)	50 pal (Video)	50 Secam (TV)	50 Secam (Video)	60TV	60 (Video)	50YUV	60YUV	50RGB	60RGB	Pic mode 0	Pic mode 1	Pic mode 2	TV	Video	TV Wide (4:3)	Video Wide (4:3)
SADJ	000	PMAX	063	063	Picture Maximum	(TV / Video)*(Normal / Wide) / <Normal / Wide>	TV-Processor																37	37	37	37
	001	SHUE	007	015	Sub-Hue	TV / Video																	07	07		
	002	SSHP	015	063	Sub-Sharpness	TV / Video / YUV			35														33/48	35		
	003	SSHO	000	007	Sub-Sharpness Offset (Intelligent Pic)	none		06																		
	004	SCOL	031	063	Sub-Color	50pal(tv)/50pal(video)/50secam(tv)/50secam(video)/ 60TV/60video/50YUV/60YUV/50RGB/60RGB				31/00	31	31/00	31	31	31	31/00	31	31/00	31							
	005	SCOO	000	003	Sub-Color Offset (Intelligent Pic)	none		02																		
	006	PIC	031	127	Picture Control [GA:0~100(valid); >100(invalid); Others:0~63(valid); ignore bit 6(invalid)]	Picture Model(GA: Personal = User Reset Data)														100	80	100				
	007	COL	031	127	Color Control [GA:0~100(valid); >100(invalid); Others:0~63(valid); ignore bit 6(invalid)]	Picture Model(GA: Personal = User Reset Data)														56/96	50	50				
	008	BRT	031	127	Brightness Control [GA:0~100(valid); >100(invalid); Others:0~63(valid); ignore bit 6(invalid)]	Picture Model(GA: Personal = User Reset Data)														50	50	50				
	009	HUE	031	127	Hue Control [GA:0~100(valid); >100(invalid); Others:0~63(valid); ignore bit 6(invalid)] (*Send to TINT #1Eh(5-0) with US model)	Picture Model(GA: Personal = User Reset Data)														50	50	50				
	010	SHP	031	127	Sharpness Control [GA:0~100(valid); >100(invalid); Others:0~63(valid); ignore bit 6(invalid)]	Picture Model(GA: Personal = User Reset Data)														60	50	50				

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)										
Category	No.	Name	Dec	Dec					Others	YUV	PAL(TV)	NTSC(TV)	SECAM(TV)	PAL(Video)	NTSC(Video)	SECAM(Video)	S-INPUT	SECAM	NTSC	TV
YC	000	PFRQ	000	003	Peaking Center Frequency and Delay	TV/other	TV-Processor		00											00
	001	RPA	000	003	Ratio Pre & Over Shoot	TV/other			02											02/03
	002	RPO	002	003	Ratio of Positive & Negative Peaks	TV/other			02											02/01
	003	YDLY	012	015	Y-Delay	(PAL/NTSC/SECAM)*(TV/VIDEO)+YUV/S-INPUT				09	11/08	08/05	08	11	09	11	09			
	004	CMAT	000	003	PAL-SECAM or NTSC (Japan/USA) Matrix			00												
	005	ACL	001	001	Automatic Color Limiting			01												
	006	CB	000	001	Chroma Bandpass Center Frequency	valid only with TV (*Video:0 fix)		01/00												
	007	SBO	001	003	SECAM Black Offset			00												
	008	CHSE	001	003	PAL/NTSC Ident Sensitivity			02												
	009	CLO	000	001	Center Frequency of Cloche(Bell) Filter			00												
	010	CTRP	000	001	Chroma Trap Mode	SECAM/others			00									01/00		
	011	BPS	000	001	Bypass of Chroma Base-band Delay Line	NTSC/others			00										01	
	012	FCO	000	001	Forced Color On			00												
	013	TINT	031	063	Base-Band Tint Control	YUV/others			31	31										
	014	TUV	000	001	Tint Control on UV Signals			00												

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)								
Category	No.	Name	Dec	Dec					(4:3) 50	(4:3) 60	Others	YUV	TV	Video	Teletext	TV-ip	No signal
SYNC	000	SYS	000	001	Synchronization on YSYNC Input		TV Processor	00									
	001	FO	000	003	Phase 1 Time Constant	TV IP ON/TV IP OFF/Video/Teletext/Auto Tuning or No signal(RF)							03	03	01/00	00	00
	002	VID	000	001	Video Ident Mode	50/60			00	00							
	003	FSL	000	001	Forced Slicing Level for Vertical Sync			00									
	004	SSL	000	001	Slicing Level Sync Separator	50/60			00	00							
	005	SVID	001	007	Source Selection for Video Identification	YUV/Others					00	00					
	006	FORF	000	003	Forced Field Frequency			03									
	007	MVK	000	001	Macro Vision Keying			01									

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)								
Category	No.	Name	Dec	Dec					Others	Live	TV (Dyn)	TV (Others)	Video (Dyn)	Video (Others)	ColorTemp (HIGH)	ColorTemp (Others)	Color Temp(LOW)	Color Temp (NORMAL)
PICT	000	CADL	007	015	Cathode Drive Level			00										
	001	CFA	000	003	Comb Filter Mode			00										
	002	SOC	002	003	Soft Clipping Level			00										
	003	PWL	001	001	Peak White Limiting Switch			01										
	004	WHTL	006	015	Peak White Limiting			00										
	005	GAM	001	001	Gamma			00										
	006	WTS	001	003	Gamma Control and White Stretch	Live/Others			02	02								
	007	TFR	000	001	DC Transfer Ratio of Luminance Signal	Live/Others			01	01								
	008	COR	003	003	Coring	(TV/Video)*(Dyna/others)					00	00	00	00				
	009	CORO	000	003	Coring Offset (Intelligent Pic)			02										
	010	BKS	003	003	Black Stretch	RGB/others			02									
	011	AAS	001	001	Black Area to Switch off the Black Stretch			01										
	012	DSK	000	001	Dynamic Skin Control			00										
	013	BLS	000	001	Blue Stretch	col temp (HIGH/OTHERS)									00	00		
	014	NBLS	000	001	Operation Blue Stretch Circuit			00										
	015	NRR	000	001	Non Red Reduction	col temp (HIGH/LOW/NORMAL)									01		01	01

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)		
Category	No.	Name	Dec	Dec					YUV	Video	TV
SW	000	CV2	000	001	CVBS2 Input Signal Selection			00			
	001	SVO	001	003	Function of IFVO/SVO/CVBSI Pin @ 48	TV/Video/YUV			02	01	01
	002	DFL	000	001	Flash Protection			01			

TVJ	Functionality		Initial	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
VIF	000	OIFD	036	063	Offset IF Demodulator		TV-Processor	36
	001	AGCT	031	063	AGC Take-over			31
	002	STM	000	001	Search Tuning Mode			01
	003	GD	000	001	Group Delay on CVBS1 Signal			00
	004	AGCS	001	003	IF AGC Speed			01
	005	FFI	000	001	Fast Filter IF PLL			00
	006	LNAI	000	001	RF Amp LNA bit initial value			00
	007	LNAT	195	225	RF Amp Threshold Level			195
	008	LNSN	004	007	RF Amp SN Level Threshold			03
	009	LNSD	002	007	RF Amp SN Level Drop Threshold			01
	010	LNEX	016	063	RF Amp check SN Drop Timing			30
	011	CHTR	048	127	Channel Threshold after Auto Prg to set RF Amp User Mode			25
	012	TUSO	000	001	Sony Tuner Used			00/01

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value(Detailed)		
Category	No.	Name	Dec	Dec					Pic mode 0	Pic mode 1	Pic mode 2
VM	000	RGBD	003	007	Delay of RGB Output to VM Output	none	TV-Processor	04			
	001	VMA	003	003	Amplitude of VM Output	none		00			
	002	VMAP	002	003	VM setting (0:High, 1:Low, 2,3:OFF)	Picture Mode			00	01	00
	003	VMMO	003	003	VM Mode			01			
	004	FVMA	004	004	Amplitude of VM Output (Full Software)	SECAM/others					

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
SDEM	000	FMWS	000	003	Window Selection for FM Demodulator		TV-Processor	02
	001	QSS	001	001	Quasi Split Sound (QSS) Amplifier Mode (N/A for GA multi M system)			*
	002	BPB	000	001	Bypass of Sound Bandpass Filter			00
	003	AMLO	000	001	Audio Output Signal for AM Sound			00
	004	HPVC	000	001	Head Phone Volume Control			00

TVJ	Functionality		Init.	Range	Data	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec					
TXT	000	TXV	039	063	FIX	Teletext Vertical Position for Philips		Text Decoder	39/00
	001	THD	010	127	FIX	Teletext H-sync Active Edge Shift			10/00
	002	TBR	015	031	FIX	Teletext RGB Brightness			14/00

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)								
Category	No.	Name	Dec	Dec					TV	Video	RF Sub	Video Sub	Off	SRS/WOW	Trusurround	Istereo	Imono
SDSP	000	BBL	000	015	BBE Contour		SSD	00									
	001	BBH	000	015	BBE Process			00									
	002	BBLW	000	015	BBE Contour Offset			06									
	003	SVOF	000	015	Surround/Effect Mode Volume Offset	Off(SRS/WOW)/Trusurround/Istereo/Imono							04	11	04	06	04
	004	LAD	000	031	Decoder Level Adjust			05									
	005	LAM	000	031	Mono Level Adjust			05									
	006	LAN	000	031	Nicam Level Adjust			*									
	007	LAS	000	031	SAP Level Adjust			08/05									
	008	LAA	000	031	ADC Level Adjust	RF/Video/centerSpk/RFSub/VideoSub			00	00	00/-	00/-					
	009	SEF	003	007	Incredible Mono/Stereo Effect	Istereo/Imono										05	03
	010	BAS	000	015	Main Bass Offset			*									
	011	TRE	000	015	Main Treble Offset			*									
	012	EQ1	000	015	Equalizer Main Channel Band (100 Hz) Offset			*									
	013	EQ2	000	015	Equalizer Main Channel Band (300Hz) Offset			*									
	014	EQ3	000	015	Equalizer Main Channel Band (1000 Hz) Offset			00									
	015	EQ4	000	015	Equalizer Main Channel Band (3000 Hz) Offset			*									
	016	EQ5	000	015	Equalizer Main Channel Band (8000 Hz) Offset			*									
	017	BFCT	005	007	DBE, DUB and BBE Control			00									
	018	SCEN	001	015	SRS3D Center Control			04									
	019	SSPA	000	015	SRS3D Space Control			01									
	020	BBHW	000	015	BBE process offset in WOW mode			00									
	021	STRE	002	007	Treble Offset for surround mode			01									
	022	BBHT	000	015	BBE Offset in TV mode			00									
	023	TTRE	002	007	Treble Offset in TV mode			02									
	024	VBAS	000	003	Bass Offset depend on user volume			00									
	025	VTRE	000	003	Treble Offset depend on user name			00									
	026	TBAS	002	007	Bass Offset for TV			00									

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
SDEC	000	SPTU	003	015	Upper Threshold for SAP carrier detection		SSD	08/05
	001	SPTL	006	015	Lower Threshold for SAP carrier detection			15
	002	SPTH	000	031	Noise Threshold for automute of SAP			00/05
	003	SPHY	004	015	Hysteresis size for automute of SAP			03
	004	FMTH	000	031	Noise Threshold for automute of SC2 in FM A2 standard			18/00
	005	FMHY	004	015	Hysteresis size for automute of SC2 in FM A2 standard			07/04
	006	NILE	100	255	NICAM lower error limit (DDEP)			50
	007	NIUE	200	255	NICAM upper error limit (DDEP)			200
	008	EPMD	001	003	DEMDEC Easy Programming (DDEP)	If EPMD = 0 and STDS = 0 and OP3 Bit 1 = 1 SDEC category is Disable and SDKC category will take over		02/01
	009	STDS	019	031	Bits multiplexed for ASD and SSS modes			31/13
	010	OVMA	001	001	FM overmodulation adaption			00
	011	FLBW	000	003	FM/AM demodulator filter bandwidth			03/01
	012	IDMD	000	003	FM ident speed in SSS mode			00/01
	013	OVMT	001	002	Overmodulation level threshold relative to nominal			03
	014	DCXI	000	001	NICAM DCXO Scaling Control Inverter			*
	015	DCXG	000	007	NICAM DCXO Scaling Control Gain			*
	016	DCLL	011	015	NICAM DCXO Scaling Control Limit (L)			00
	017	DCLH	000	031	NICAM DCXO Scaling Control Limit (H)			*
	018	IDKR	001	003	IDMOD setting Korean M STD			00

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
SDKC	000	KNLL	000	255	Korean Noise Det Lower Threshold Lower Byte	If EPMD = 0 and STDS = 0 and OP3 Bit 1 = 1 SDEC category is Disable and SDKC category will take over		
	001	KNLH	012	255	Korean Noise Det Lower Threshold Higher Byte			
	002	KNHL	000	255	Korean Noise Det Upper Threshold Lower Byte			
	003	KNHH	020	255	Korean Noise Det Upper Threshold Higher Byte			
	004	KLIC	060	255	Korean Lost Pilot ID Maintaining Count			
	005	KLIM	001	127	Korean Lost Pilot ID Maintaining Count Multiplier			
	006	KSDC	006	255	Korean Stereo Detect Count			

(For Korean NTSC model only)

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)													
Category	No.	Name	Dec	Dec					(4:3) 50	(4:3) 60	(16:9) 50WZ	(16:9) 60WZ	(16:9) 50N	(16:9) 60N	(16:9) 50F	(16:9) 60F	(16:9) 50Z	(16:9) 60Z	Sub 50Hz	Sub 60Hz	TV	Video
PIP	000	HPS	051	255	Horizontal Picture Position		SDA9288X															
	001	VPS	027	255	Vertical Picture Position																	
	002	VFP	008	015	Vertical Fine Position																	
	003	HFP	015	015	Horizontal Fine Position	50/60 Hz (Sub Pic)																
	004	VSP	000	001	Vertical Sync Pulse Noise Reduction																	
	005	VDL	000	031	Vertical Sync Pulse Delay																	
	006	DLY	001	015	Select Delay																	
	007	AGV	011	015	Automatic Gain Control Value																	
	008	CPD	000	003	Clamping Duration																	
	009	PLL	000	003	Insert PLL time Constant	TV/Video																
	010	YCD	012	015	Y/C Delay																	
	011	KIL	000	003	Color killer Threshold																	
	012	BGP	000	001	Burst Gate Position																	
	013	DEM	001	003	Deemphase Selection																	
	014	CMA	001	003	Chroma Bandwitch																	
	015	IFC	002	003	IF Compensation Filter																	
	016	HUE	032	063	HUE Control																	
	017	SCA	006	031	Color Subcarrier Adjustment																	
	018	CON	000	015	Contrast Adjustment																	
	019	BRT	000	015	Brightness Adjustment																	
	020	PKR	133	255	Peak Level Red																	
	021	PKG	133	255	Peak Level Green																	
	022	PKB	133	255	Peak Level Blue																	
	023	FRY	015	015	Frame Color Y																	
	024	SAT	007	015	Color Saturation Adjustment																	
	025	YPK	003	007	Y Peaking Adjustment																	
	026	YCO	001	001	Y Coring Enable																	
	027	P21	000	007	PALIDL 2 and PALIDL 1																	
	028	PAL	000	001	PAL ID Level																	
	029	POV	000	007	Position Offset Vertical																	
	030	POH	016	031	Position Offset Horizontal																	
	031	CPL	001	003	Clamping Pulse Length																	
	032	SRL	000	003	Secam Rejection Level																	
	033	SIL	007	007	Secam Identification Level																	
	034	SED	001	001	Secam divider																	
	035	BFA	001	001	Bellfilter Adjustment																	
	036	P12	000	003	PAL Increment 1 and 2																	
	037	LOS	001	003	Locking Speed	TV/Video																
	038	SAL	000	007	Secam Acceptance Level																	
	039	SEA	000	001	Secam Acceptance																	
	040	NSR	000	007	Noise Reduction For Horizontal PLL	TV/Video																
	041	SLH	000	003	Slicing Level Threshold H																	
	042	IAJ	000	003	I-adjustment For Horizontal PLL																	
	043	V50	000	127	Vertical Window Noise Suppression Opening 50 Hz																	
	044	V60	032	127	Vertical Window Noise Suppression Opening 60 Hz																	
	045	VNS	000	015	Vertical Window Noise Suppression Closing 60 Hz																	
	046	VSC	000	015	Vertical Window Noise Suppression Closing 50 Hz																	
	047	SVT	015	015	Slicing Level Threshold V Polarity & SLTV																	
	048	VFM	000	003	Vertical Flywheel Mode																	
	049	VFW	000	001	Vertical Flywheel																	
	050	LVS	000	003	Lowpass for Vertical Sync-separation																	
	051	CLA	003	003	Clamping latency																	
	052	SCP	004	031	Start of Clamping Pulse																	

(For PIP model only)

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
HTV	000	VMAX	000	063	Maximum Volume Level (MAX = 35+VMAX)	Volume Level		00
	001	VINI	025	031	Initial Volume Level at Power on	Volume Level		25
	002	STBY	000	001	Last Power Status (0 = follow the last power status, 1 = always STBY)	Last Power		01
	003	IPRG	001	127	Initial Program Number at Power on (only for Multi Models)	Program Number		01

0TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)	
Category	No.	Name	Dec	Dec					(4:3) 50	(4:3) 60
OPTM	000	ASHT	006	007	Auto shut off timer (data * 5 min)			00/07		
	001	OSDB	000	015	OSD brightness		MMR/Micro 60h	12/05		
	002	OSDH	008	015	OSD Horizontal Position		XDATA/Micro 60h	08		
	003	OSDV	037	063	OSD Vertical Position	<4:3 50/60> <16:9 (50/60) (Wide)(Wide Zoom)(Normal Full)>	MMR/Micro 60h		63	31/39
	004	MUTE	000	001	No Signal Mute Switch (1=enabled)			00/01		
	005	RFUL	015	015	RF Signal Change Counter after Unlocked (Disable when 0fh)			04/01		
	006	RFLK	015	015	RF Signal Change Counter after Locked (Disable when 0fh)			00/04		
	007	LANG	000	003	OSD language shipping condition			*		
	008	HTXT	000	001	Sync seperator sw		TV-Processor	00		
	009	CMSS	000	001	Sync sw		TV-Processor	01		
	010	DCXO	060	127	DCXO Value		SFR/Micro 60h/DSP	*		
	011	DISC	128	255	target DISCO data for DCXO adjust by color dec			*		
	012	EXBL	000	015	Extended Blanking Timer to Eliminate White Noise			10/05		
	013	TSYS	000	003	Memorize TV Sys in NVM at Test Reset [0:B/G, 1:I, 2:D/K, 3:M] (GA Model)			*		
	014	LNSW	001	001	Signal Booster Shipping/Test Reset condition (1:Auto, 0:Off)			01		
	015	AVUL	015	015	Av signal change after Unlocked (Disable when 0Fh)			04		
	016	AVLK	015	015	Av signal change after locked) (Disable when 0Fh)			00		
	017	DSTM	000	000	Disable stop mode in Standby (0: Stop mode, 1:disable Stop mode)			01		

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)	
Category	No.	Name	Dec	Dec					Others	YUV
OPUS	000	SOFF	000	001	Stay off(0:follow last memory with AC on, 1:standby with AC on)			00		
	001	SPCH	001	127	Channel Number after Shipping Condition			07		
	002	SPCA	001	001	Cable Selection after Shipping Condition (1 = Cable On)			01		
	003	OUV	000	001	Offset Control on UV input Signals (only for US)	Others/YUV			00	00
	004	CFA2	000	001	Forced Comb Filter On (only for US)	none		00		

(For NTSC model only)

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common	Initial Value (Detailed)		
Category	No.	Name	Dec	Dec					Others	NTSC	SECAM
OPVP	000	BPBS	000	001	Bypass of sound bandpass filter at stereo mode (BPBS)		TV-Processor	00			
	001	BWYC	000	001	Bandwidth at YC mode for 3.58 MHz color system (BWYC)			00			
	002	OSB	000	001	Width of internal burstkey pulse of chroma demodulator (OSB)			00			
	003	BKC	000	001	Burst Key Position	NTSC/SECAM/others (PAL)			00	00	00/01

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
OPFM	000	FMCT	001	003	FM Radio Auto Scan Carrier Threshold			15
	001	RPST	003	127	Waiting time for each frequency step during radio preset			10
	002	MPTU	003	015	Upper Threshold for MPX pilot detection (FM RADIO)		SSD	12
	003	DCOU	133	255	Upper Threshold for DC offset from FM demodulator			144/140
	004	DCOL	117	255	Lower Threshold for DC offset from FM demodulator			118/114
	005	OVMA	001	001	FM overmodulation adaption (FM RADIO)		SSD	00
	006	FMBR	000	031	OSD Brightness during FM Mode		MMR/Micro 60h	12
	007	RTRE	000	007	Treble Offset in FM Radio Mode		SSD	03
	008	RBAS	002	008	Bass Offset in FM Radio Mode		SSD	02
	009	AGCT	045	063	AGC takeover in FM Radio Mode		TV-Processor	VIF 001 "AGCT" + 15
	010	FLBW	003	003	FM/AM demodulator filter bandwidth		SSD	01

TVJ	Functionality		Init.	Range	Function	Table & Note	Device Name	Common
Category	No.	Name	Dec	Dec				
OPTB	000	IALL	000	001	Standard Write Switch (not memorized in NVM)			X
	001	OPB1	000	255	Option 1 (System related)			refer page 25
	002	OPB2	000	255	Option 2 (Video Signal related)			refer page 25
	003	OPB3	000	255	Option 3 (Stereo Decoding related)			refer page 26
	004	OPB4	000	255	Option 4 (Miscellaneous)			refer page 26
	005	OPB5	000	255	Option 5 (Miscellaneous)			refer page 27
	006	OPB6	000	255	Option 6 (OSD Language related)			refer page 27

Data Variant depend on models

Category	No	Name	Mono & AV Stereo models	Stereo,China & India models	NTSC models
SDEM	001	QSS	00	01	01

Category	No	Name	SW21-3D models	SW21-non 3D model
SDSP	010	BAS	18	22
	011	TRE	18	21
	012	EQ1	23	20
	013	EQ2	02	03
	015	EQ4	20	00
	016	EQ5	21	00

Category	No	Name	Russia	Other models
SDSP	006	LAN	17	22

Category	No	Name	Stereo models	Non-Stereo models	NTSC models
SDEC	014	DCXI	00	01	00
	015	DCXG	03	00	00
	017	DCLH	06	00	00

Category	No	Name	Russia	Other models
OPTM	007	LANG	01	00

Category	No	Name	GA Stereo	GA AV Stereo	GA Mono	NTSC
OPTM	010	DCXO	53	48	48	IC data + 10

Category	No	Name	NICAM Stereo	AV Stereo & Mono	NTSC
OPTM	011	DISC	128	134	134

Category	No	Name	Other Country	Russia model
OPTM	013	TSYS	00	02

ITEM INFORMATION

No. OPB1

Item	Speed Search		Home Theatre	Wide Screen	M	B/G	I	D/K	DEC
KV-SW21M20	0	1	0	0	1	1	1	1	79
KV-SW21M80	0	1	0	0	1	1	1	1	79
KV-SW21M95	0	1	0	0	1	1	1	1	79

SPEED SEARCH (Time of speed search)		00 = disabled (original cycle speed) 01 = 4 time speed from the original 10 = 6 time speed from the original 11 = 8 time speed from the original
Home Theatre		1 = Home Theatre mode available
Wide Screen		1 = Wide Screen model
TV System Selection	(M,B/G, I, D/K)	0 = disabled, 1 = enabled

No. OPB2

Item	Party Mode	FM Radio	Component	Composite (SCART)		SECAM	Color Decording		DEC
KV-SW21M20	0	0	1	0	1	1	0	0	44
KV-SW21M80	0	0	1	0	1	1	0	0	44
KV-SW21M95	0	1	1	0	1	1	0	0	108

Party Mode	Party Mode Function	0 = not available, 1 = available
FM Radio	FM Radio Function	0 = not available, 1 = available
Component	(Component [YCbCr] Terminals)	0 = not available, 1 = available
Composite	(No. of Composite Terminals)	00 = 1 composite terminal 01 = 2 composite terminals 10 = 3 composite terminals 11 = 4 composite terminals (BX1L FULL only)
SECAM	(SECAM Color System)	0 = disabled, 1 = enabled
Color decoding	(Color Crystal Selection)	00 = PAL/NTSC (Multi) 01 = NTSC (3.58MHz) 10 = PAL/NTSC (4.43MHz) 11 = PAL/NTSC (Tri-Norma)

No. OPB3

Item	Reserved	NICAM ST	NICAM BI	A2 ST	Thai Bilingual	US ST	Korean ST	MONO	DEC
KV-SW21M20	0	0	0	0	0	0	0	0	0
KV-SW21M80	0	0	0	0	0	0	0	0	0
KV-SW21M95	0	1	1	1	0	0	0	0	112

Reserved	Not used	
NICAM ST	(NICAM Stereo)	0 = disabled, 1 = enabled
NICAM BI	(NICAM Bilingual)	0 = disabled, 1 = enabled
A2 ST/BI	(A2 [West German] Stereo/Bilingual)	0 = disabled, 1 = enabled
Thai Bilingual	(A2 [Thai] Bilingual) or Force SAP if US ST is active	0 = disabled, 1 = enabled
US ST	(US Stereo)	0 = disabled, 1 = enabled
Korean ST	(Korean Stereo)	0 = disabled, 1 = enabled
MONO	(Monaural Model)	0 = Stereo (SSD) Model 1 = Monaural Model

No. OPB4

Item	Sound Special	1spk Models	VM	WSS-RF	Surround		Top	Text	DEC
KV-SW21M20	0	0	0	0	0	0	0	0	0
KV-SW21M80	0	0	0	0	0	0	0	0	0
KV-SW21M95	0	0	0	0	0	0	0	1	1

Sound Special	Sound Special Feature	0 = disabled 1 = enabled
1 spk Models	1 Speaker Models	0 = 2 or 3 Speaker Models, 1 = 1 speaker Models
VM	(Velocity Modulation)	0 = disabled, 1 = enabled
WSS-RF	WSS detection in RF mode	0 = disabled, 1 = enabled
Surround	(Surround Selection)	00 = Off/Simulated/Surround 01 = Off/Simulated/SRS (3D) Surround 10 = Off/Simulated/WOW/TruSurround 11 = No Surround
TOP	(Forced TOP)	0 = Auto Mode (TOP/FLOF), 1 = Forced TOP
TEXT	(Teletext Model)	0 = Non-Teletext Model, 1 = Teletext Model

No. OPB5

Item	Signal Booster	MSYS ASD	COSMIC ASD	ASD	Tilt	Band Edge	IP	Wide	DEC
KV-SW21M20	1	0	1	0	0	0	1	1	163
KV-SW21M80	1	0	1	0	0	0	1	1	163
KV-SW21M95	1	0	0	1	1	0	1	1	155

Signal Booster	Signal Booster feature	0 = disabled, 1 = enabled
MSYS ASD	(ASD Improvement for M System channels) *Only applicable when ASD = 1	0 = disabled, 1 = enabled
COSMIC ASD	Automatic Standard Detection Using COSMIC (Non-Stereo)	0 = disabled, 1 = enabled
ASD	(Automatic Standard Detection)	0 = disabled, 1 = enabled
Tilt	(Tilt Correction/PIC Rotation)	0 = disabled, 1 = enabled
Band Edge	(VHF-H band Limit Position)	0 = 427.25MHz, 1 = 429.25MHz
IP	(Intelligent Picture & Intelligent Picture Plus)	0 = disabled, 1 = enabled
Wide	(Wide Mode/V-Compressed)	0 = disabled, 1 = enabled

No. OPB6

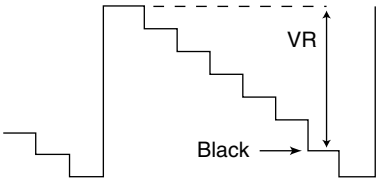
Item	Reserved	3D OSD	3D Comb	PiP	OSD Language Selection				DEC
KV-SW21M20	0	0	0	0	0	0	0	0	0
KV-SW21M80	0	0	0	0	0	1	0	0	4
KV-SW21M95	0	0	0	0	0	1	0	0	4

Reserved	Not used		
3D OSD	(BX1L Full version GA Multi Destination ONLY)		0 = Normal with 3D Intelligent Picture OSD 1 = Disable 3D Intelligent Picture OSD
3D Comb	3D comb feature		0 = Comb Not available 1 = Comb available
PiP	PiP feature		0 = PiP Not Available 1 = PiP available
OSD Language Selection		US (GA NTSC)	1x1x = Complicated Chinese 1xxx = Simplified Chinese
		GA	x1xx = Arabic/Russian xx1x = Thai xxx1 = Persian/Vietnamese

3-3. PICTURE QUALITY ADJUSTMENT

3-3-1. P MAX/CONTRAST ADJUSTMENT

1. Set TV to Video mode.
2. Set Picture mode to "CUSTOM".
3. Input PAL 100% CB to TV set (OTHERS), NTSC 75% CB (NTSC model).
4. Set PICT 003 "PWL" to 00h WHBL 017 "BLBG" to 01h.
5. Set the following condition:
   PICTURE 100%, COLOR 0%, BRIGHTNESS 50%
6. Connect an oscilloscope to pin ④ (R Output) of CN004.
7. Select SADJ 000 "PMAX" with [1] and [4] button of the commander then adjust VR with spec with [3] and [6] until reach the spec below:

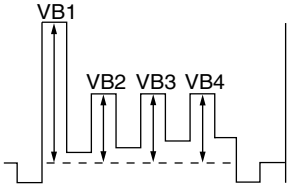


1.46 ± 0.03 Vp-p = For 21" without VM models/14" GA models
1.65 ± 0.03 Vp-p = With VM models except NTSC models
1.23 ± 0.03 Vp-p = NTSC models VM models
1.10 ± 0.03 Vp-p = For 21" NTSC non VM models/
14" GA NTSC models

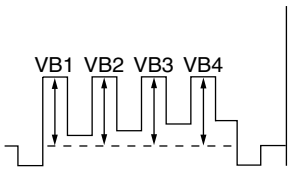
8. Select Wide Mode to "ON" in TV and Video mode and write "PMAX" data - 8 steps
   (for models with V-Compression features only).
9. Then press [MUTING] → [0] to write the data.
10. Select "PWL" and "BLBG" back to initial data.
    ("PWL": 01h and "BLBG": 00h)
11. Then press [MUTING] → [0] again to write the data.

3-3-2. SUB COLOR ADJUSTMENT

1. Set TV to Video mode.
2. Set Picture mode to "Custom".
3. Input PAL 100% Color Bar(CB) to TV set (OTHER MODEL).
4. INPUT NTSC 75% CB to TV set (NTSC MODEL).
5. Set PICT 006 "WTS" to 00h and Intelligent Picture to "OFF".
6. Set the following condition:
   PICTURE 50%, COLOR 50%, BRIGHTNESS 50%, HUE 50%, SHARPNESS 50%
7. Connect an oscilloscope to pin ② (B Output) of CN004.
8. Select SADJ 004 "SCOL" with [1] and [4] button of the commander then adjust with [3] and [6] so that $V_{B2}=V_{B3}=V_{B4}$ (for PAL), and $V_{B1}=V_{B4}$ (for NTSC) then write in the data +5 step offset.



VB2 = VB3 = VB4 (for PAL)

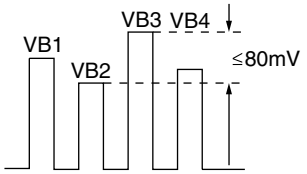


VB1 = VB4 (for NTSC)
(Difference is within 70mV)

9. Then press [MUTING] → [0] to write the data.
10. Set "WTS" back to original data and Intelligent Picture to "ON".
11. Copy no.9 data to PAL TV & DVD mode (OTHER MODEL) and NTSC TV & DVD mode (NTSC MODEL)

3-3-3. SUB HUE ADJUSTMENT

1. Set TV to Video mode.
2. Set Picture mode to "CUSTOM".
3. Input NTSC 3.58 CB to TV set.
4. Set the following condition:
   PICTURE 50%, COLOR 50%, BRIGHTNESS 50%, HUE 50%, SHARPNESS 50%
5. Select service mode and - 5 step offset from SADJ 004 "SCOL" using [1] and [3] button of the remote commander.
6. Connect oscilloscope to pin ② (B output) of CN004.
7. Set to service mode and select SADJ 001 "SHUE" with [1] and [4] button then adjust to $V_{B1}=V_{B2}=V_{B3}=V_{B4}$ with [3] and [6] button.
8. Press [MUTING] → [0] to write the data.
9. Select service mode SADJ 004 "SCOL" and +5 step offset and write the data using [MUTING] → [0].
10. Select TV channel with 3.58 and repeat item (3) to (7) and +1 step data offset.(NTSC model)
11. Press [MUTING] → [0] to write the data.
12. For single system model with NTSC 4.43, select TV channel with NTSC 4.43 and repeat item (3) to (8).



The highest level of V_{B1}, V_{B2}, V_{B3}, V_{B4} must be aligned at the same time.
The ideal difference between V_{B2} and V_{B3} is within ± 80mV

13. Once adjustment is completed in Video mode, carry out adjustment in DVD mode. Set TV to DVD mode. Input NTSC 3.58 CB to DVD set and perform step 4 to 9 and 11.

3-3-4. SUB BRIGHT ADJUSTMENT

1. Set TV to RF mode.
2. Input PAL monoscope to RF mode.
3. Set Brightness 50% and Picture to "MINIMUM".
4. Select WHBL 010 "SBRT" with [1] and [4] button of the remote commander and adjust its data with [3] and [6] so that cut-off level is 10 IRE, slightly glimmer: 20 IRE.
5. Write into the memory by pressing [MUTING] → [0].

3-4. GEOMETRY ADJUSTMENT

Geometry adjustment must be done for both color systems PAL and NTSC.

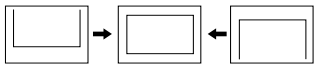
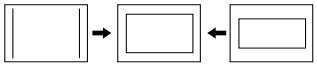
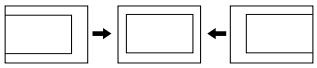
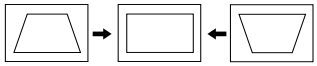
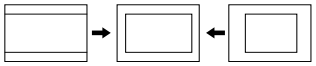
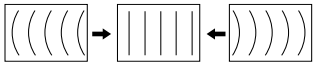
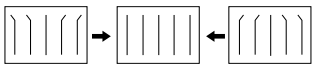
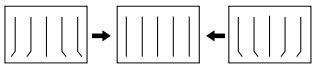
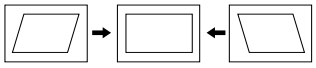
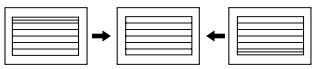
3-4-1. GENERAL SETTING

a) Input Monoscope or Special Color Bar(SPCB) signal using a pattern generator.
b) Set to Service Mode.
c) Select Category/Functionally Name (as in the service list) using [1] and [4] button on the remote commander.
   Eg. GEOM
d) Raise or Lower the data value using [3] and [6] button.
e) Press [MUTING] → [0] to save the data into memory.

Note 1: Geometry Adjustment must be performed for 4 different modes: PAL 50Hz NORMAL MODE, PAL 50Hz WIDE MODE, NTSC 60Hz NORMAL MODE, NTSC 60Hz WIDE MODE.

3-4-2. PAL 50Hz NORMAL MODE

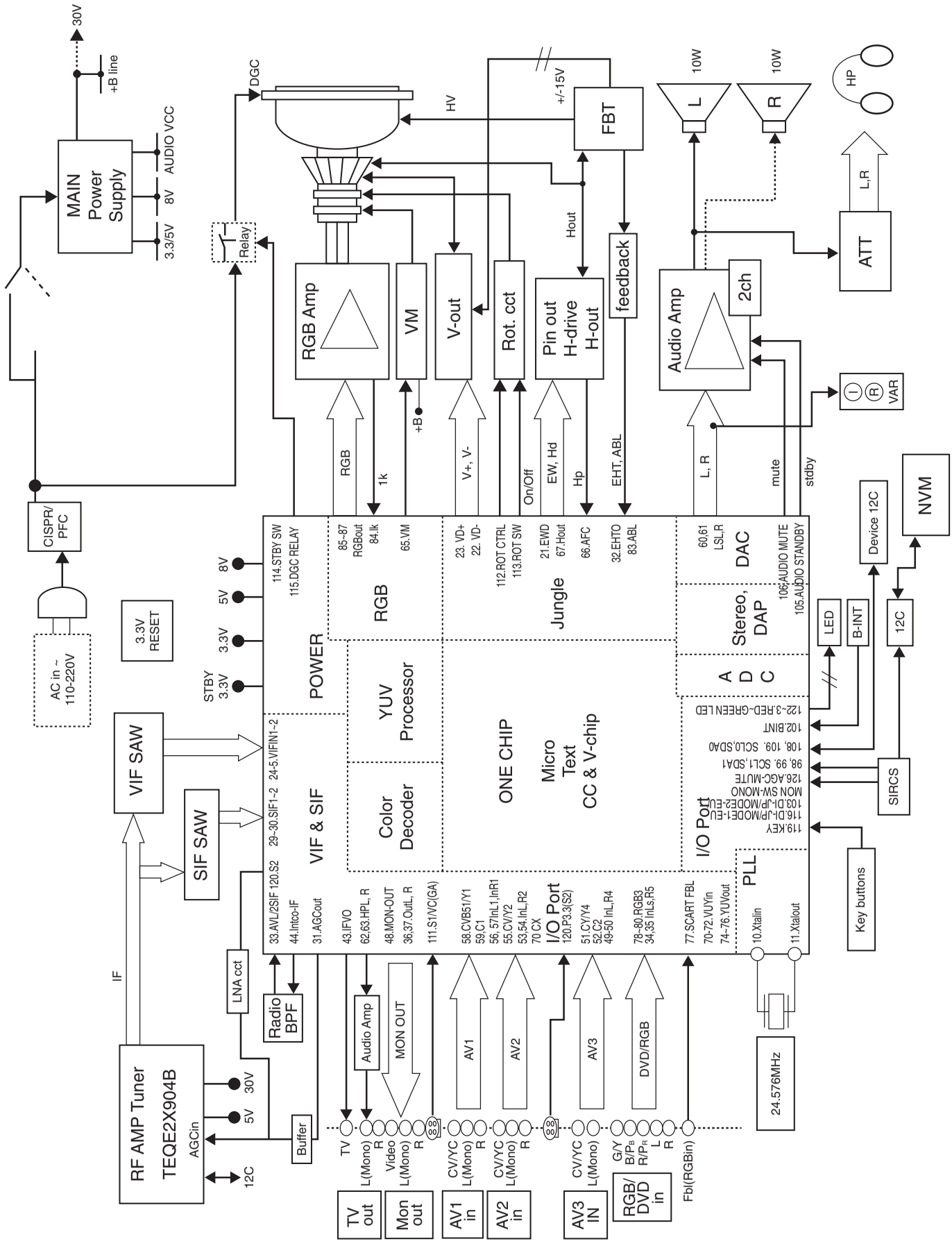
a) Input PAL signal 50Hz in the Service Mode.
b) Set Wide Mode to "OFF".
c) Perform the below adjustments using the "GENERAL SETTING" sequence (Refer 3-4-1)

Item No.	Function	Illustration
GEOM 013 (VPOS)	Vertical Shift	
GEOM 011 (VSIZ)	Vertical Amplitude	 *Note: Adjust VSIZ to 12.4±(SPCB) 11.3±(PAL Monoscope) 11.5±(NTSC Monoscope)*
GEOM 000 (HPOS)	Horizontal Shift	
GEOM 009 (EWTZ)	EW Trapezoid	
GEOM 005 (HSIZ)	EW Width (EW)	 *Note: Adjust HSIZ to 16.4±(SPCB) 14.6±(PAL Monoscope) 15.3±(NTSC Monoscope)*
GEOM 002 (HBOW)	Horizontal Bow	
GEOM 006 (EWPW)	EW Parabola/Width (PW)	
GEOM 007 (UCOP)	EW Upper Corner Parabola	
GEOM 008 (LCOP)	EW Lower Corner Parabola	
GEOM 001 (HPAR)	Horizontal Parallelogram	
GEOM 012 (SCOR)	S-Correction(SC)	
GEOM 003 (VLIN)	Vertical Linearity	
GEOM 004 (VSCR)	Vertical Scroll	

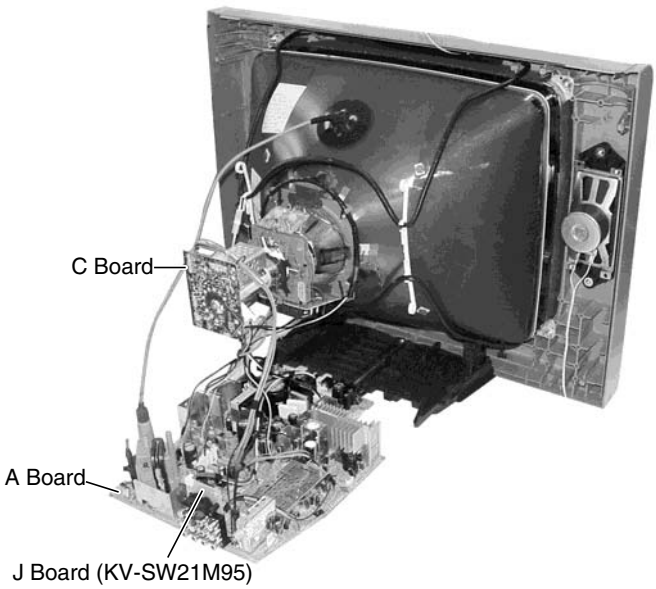
d) Once adjustment is done for PAL 50Hz NORMAL MODE,set Wide mode to "ON", and copy all PAL 50Hz NORMAL MODE adjusted data to PAL 50Hz WIDE MODE except VSCR.
e) Now, perform adjustment for NTSC 60Hz NORMAL MODE.
f) Set Wide mode to "OFF".
g) Perform adjustment items listed in the above table using the "GENERAL SETTING sequence (refer 3-4-1).
h) Once adjustment is completed,set Wide mode to "ON" and copy all NTSC 60Hz NORMAL MODE adjusted data to NTSC 60Hz WIDE MODE except VSCR.
i) Upon completing adjustment for all modes,reconfirm VSIZ and VPOS.

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



4-2. CIRCUIT BOARDS LOCATION



4-3. SCHEMATIC DIAGRAM INFORMATION

Note:

- All capacitors are in µF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)

- : nonflammable resistor.
- : fusible resistor
- △ : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
  no mark : Common
  ( ) : PAL
  [ ] : NTSC 3.58
- **Readings are taken with a 10 MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltage are in Volt.**
- **✻ : Cannot be measured.**
- **Circled numbers are waveform references.**
- **: B +bus.**
- **: B –bus.**
- **⇨ : signal path.**

Note: The reference number which starts with Wxxx (eg: W003) indicates a wire to wire connection.

Note: Components marked as XX are not fitted on this model.

Reference information

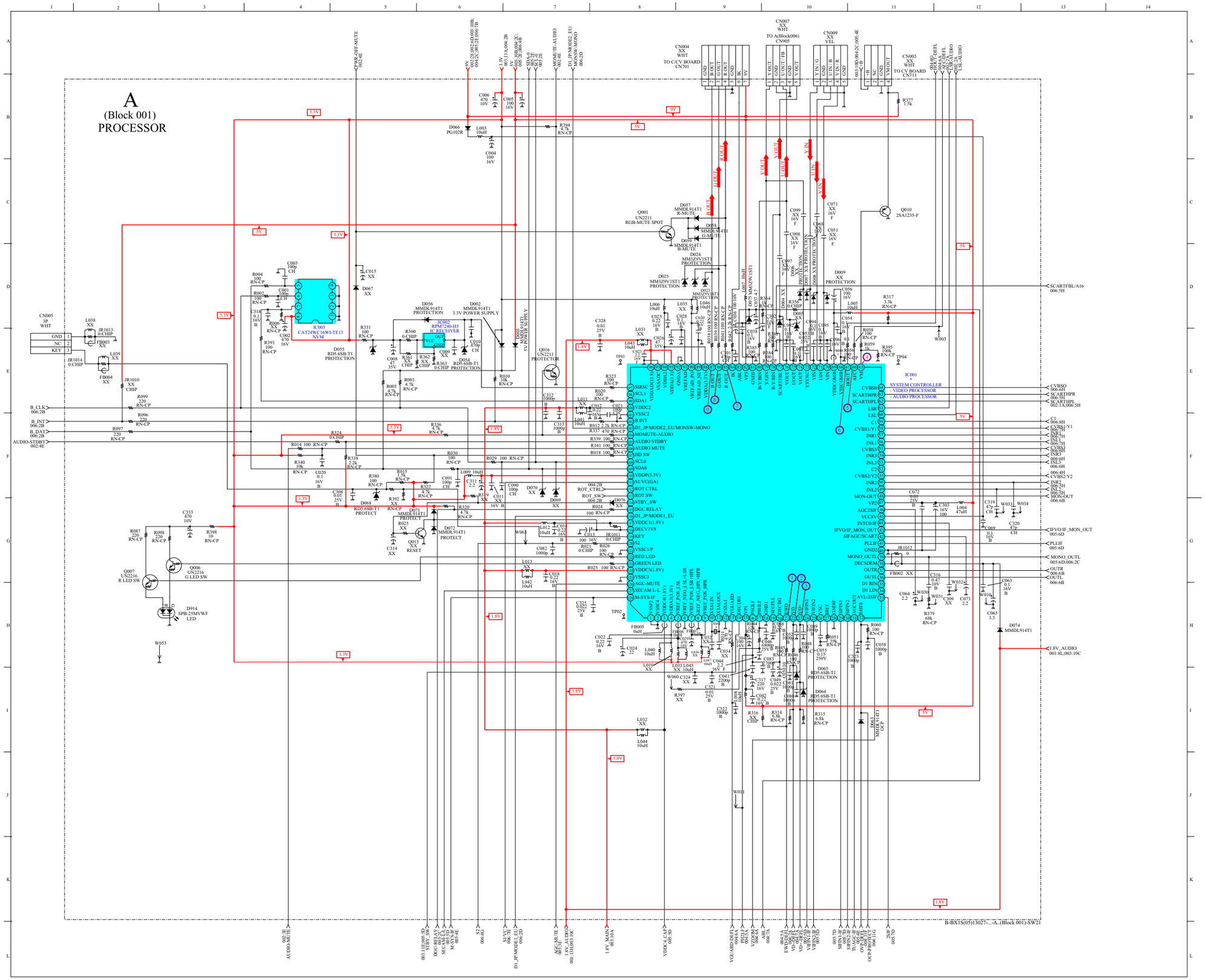
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ✻	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: "A" board schematic diagram is divided into 7 blocks.
Each block is named by its function and block "number".
eg: Processor (Block 001)
Joint connection between boards can be identified using the block number followed by the grid's guide.
eg: -<PWR-OFF MUTE
002 : 4E
Meaning: Block 001 joint "PWR-OFF MUTE" is connected to Block 002 joint "PWR-OFF MUTE" located at grid 4E.

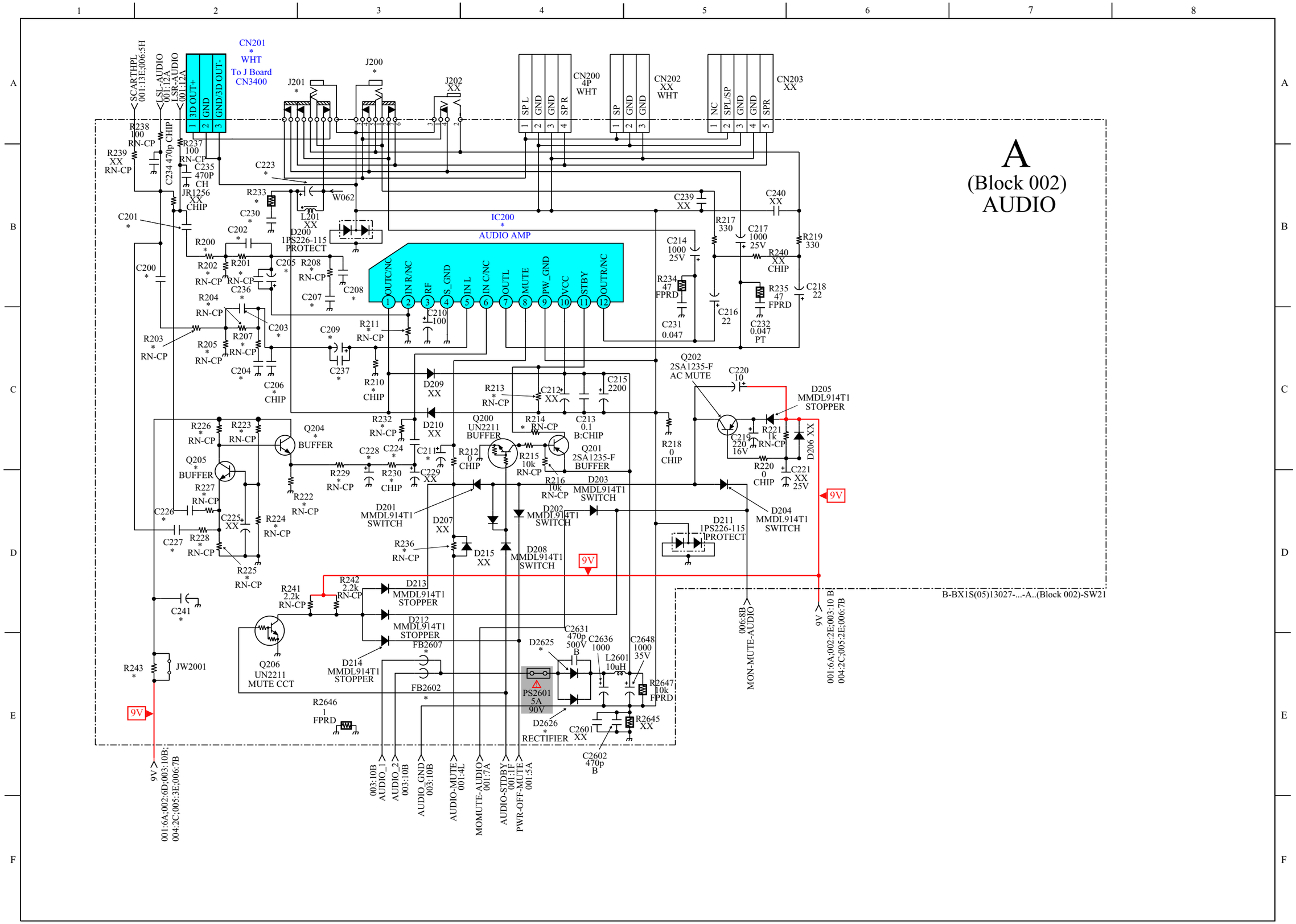
KV-SW21M20/M80/M95
RM-GA002

4-3-1. A Board — (Block 001)



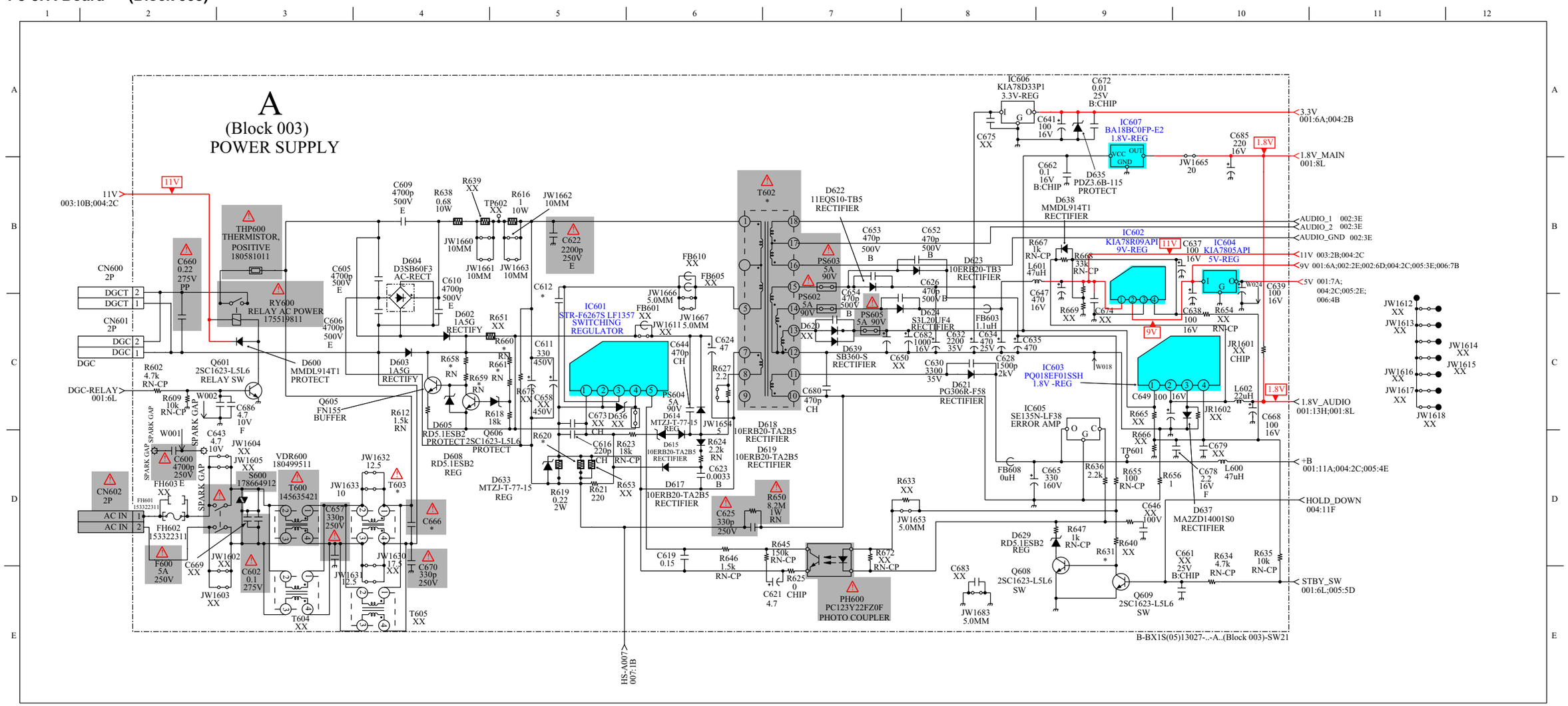
KV-SW21M20/M80/M95
RM-GA002

4-3-2. A Board — (Block 002)



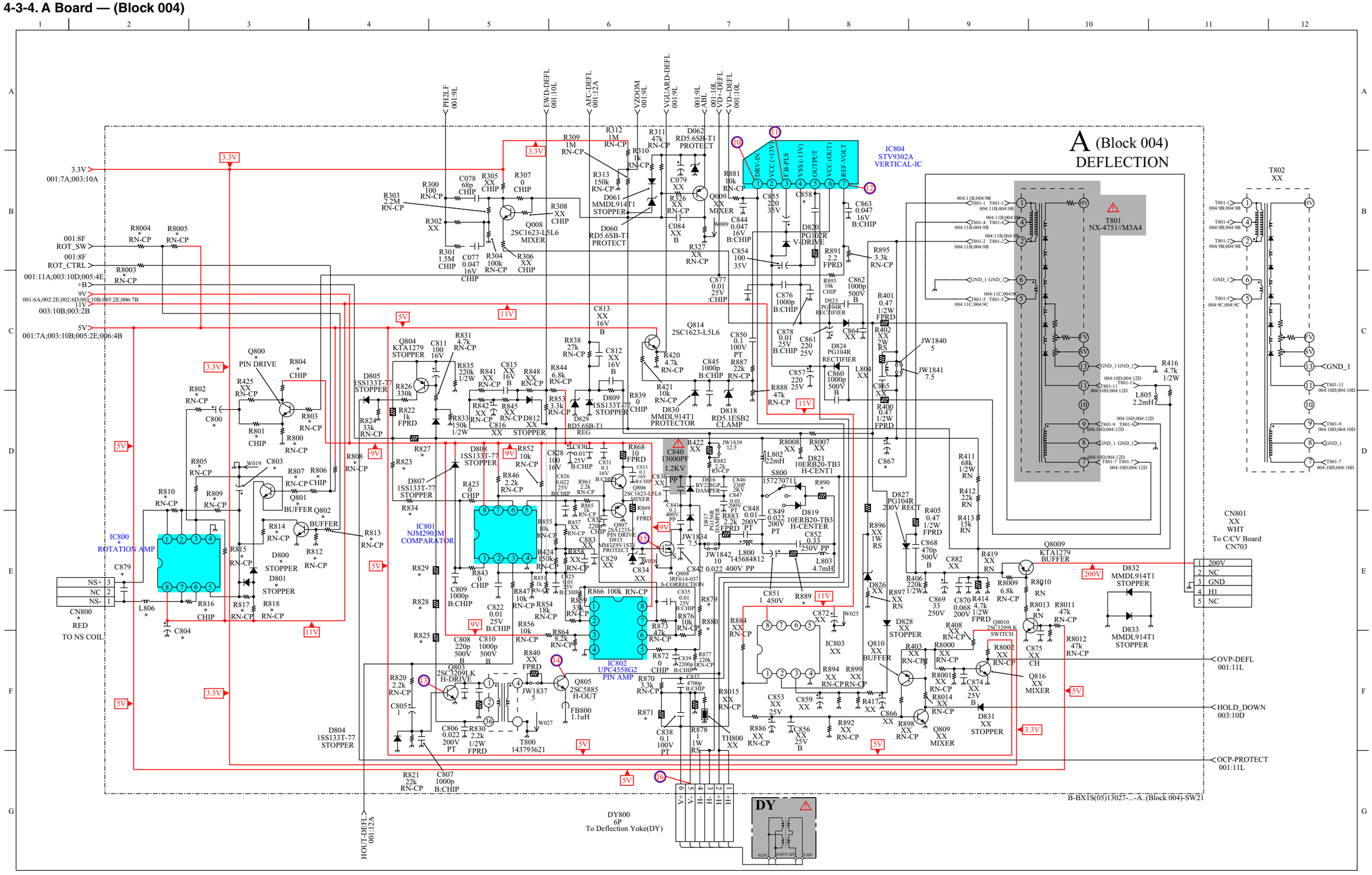
KV-SW21M20/M80/M95
RM-GA002

4-3-3. A Board — (Block 003)



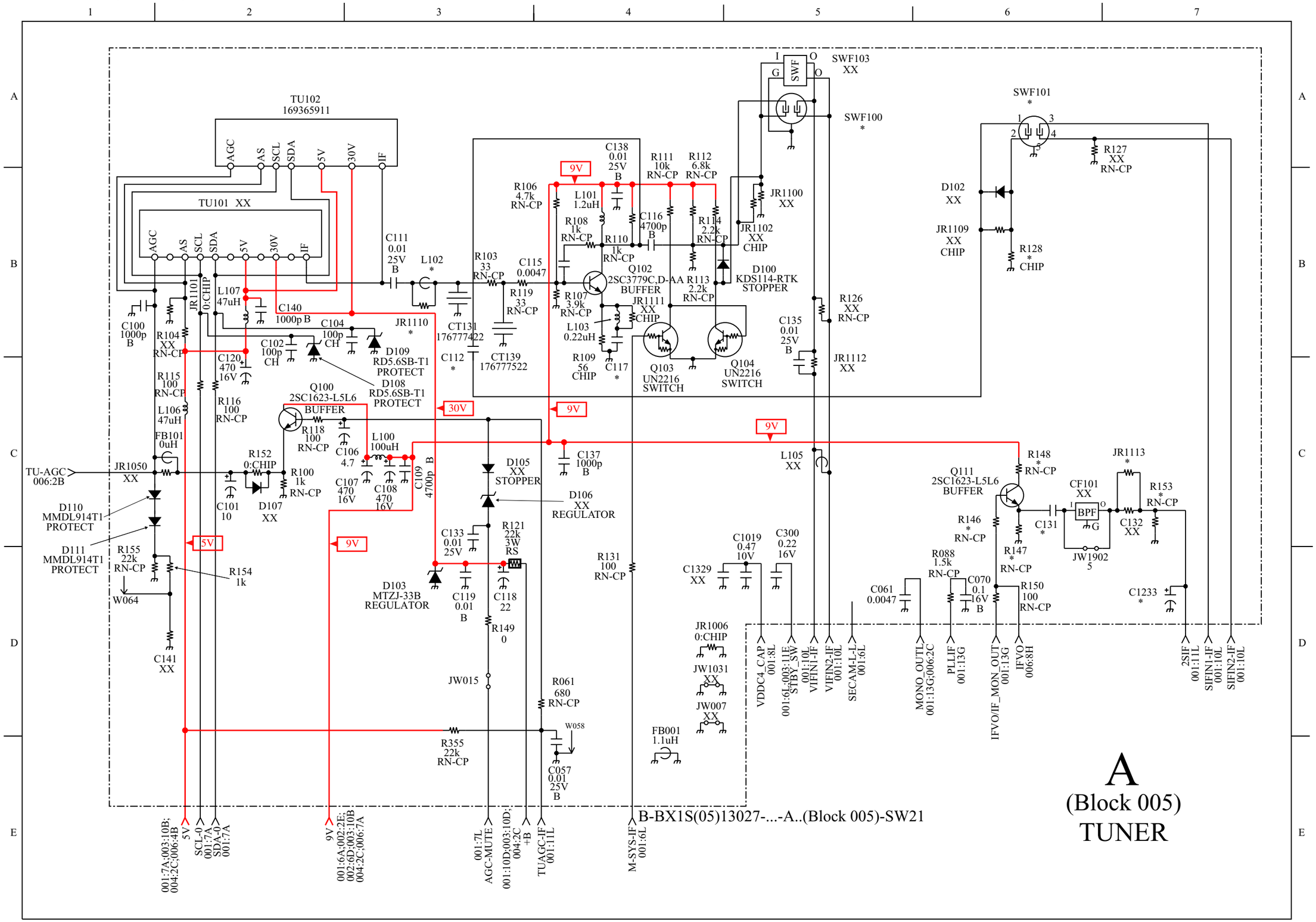
KV-SW21M20/M80/M95
RM-GA002

4-3-4. A Board — (Block 004)



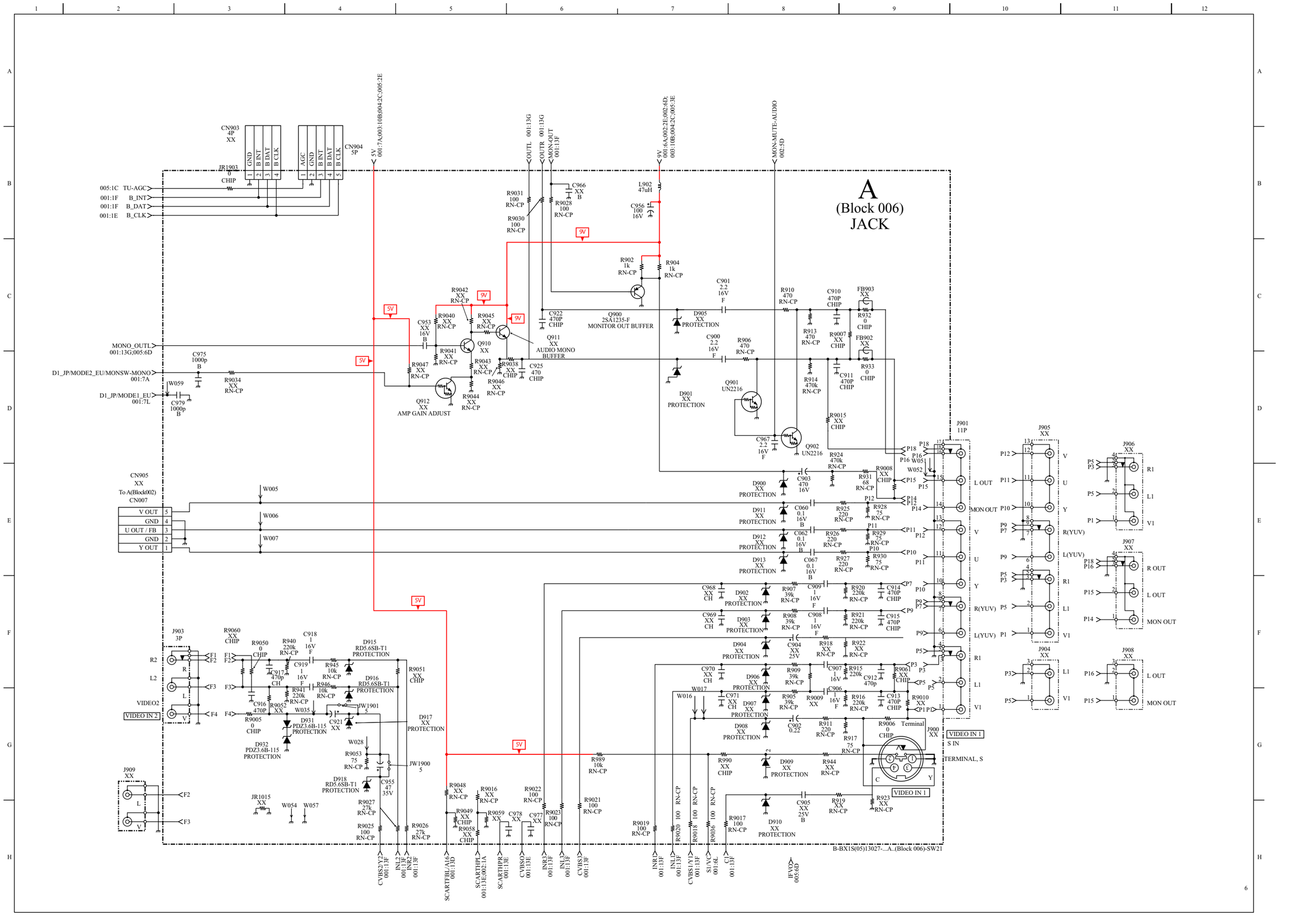
KV-SW21M20/M80/M95
RM-GA002

4-3-5. A Board — (Block 005)

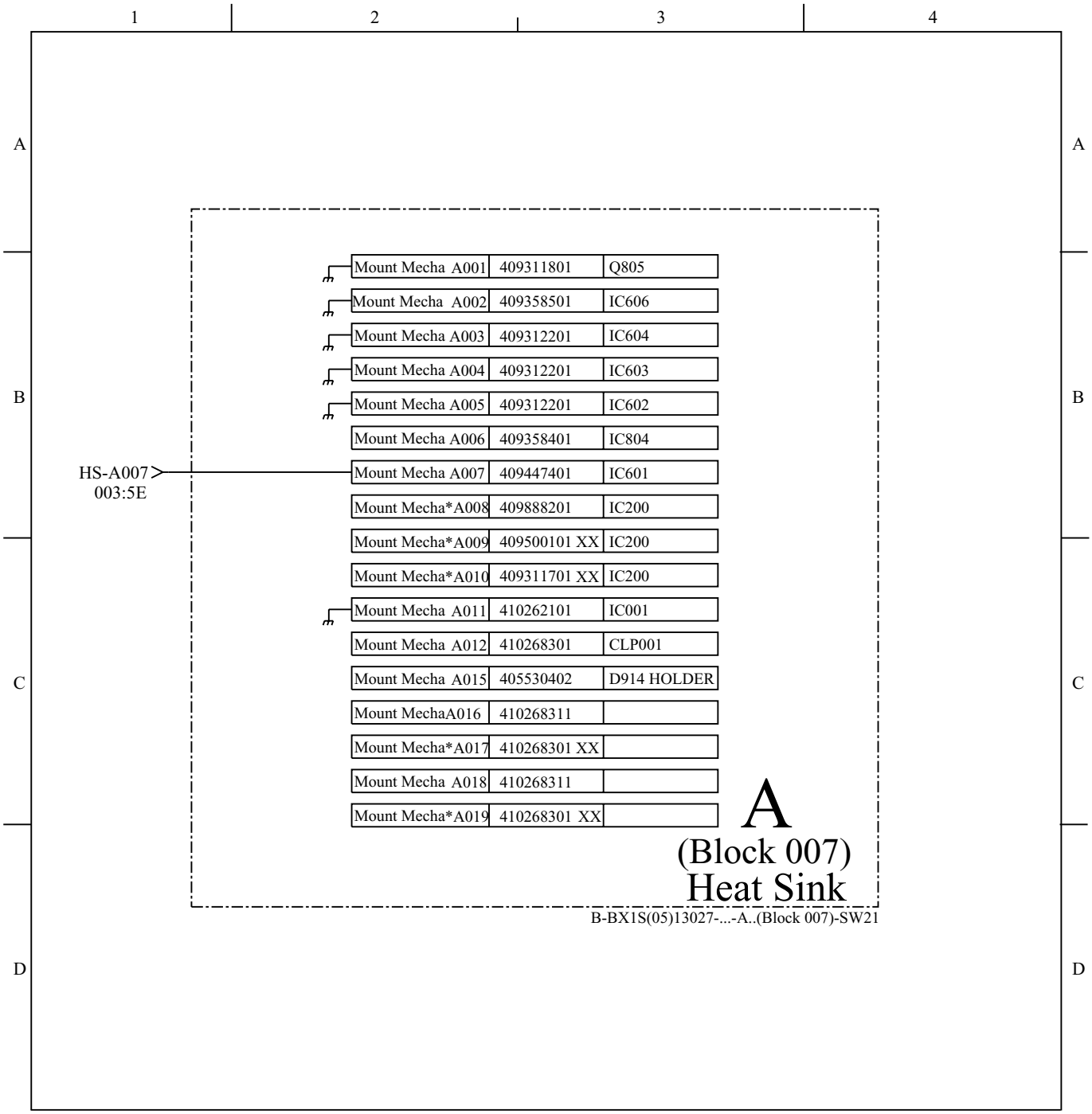


KV-SW21M20/M80/M95
RM-GA002

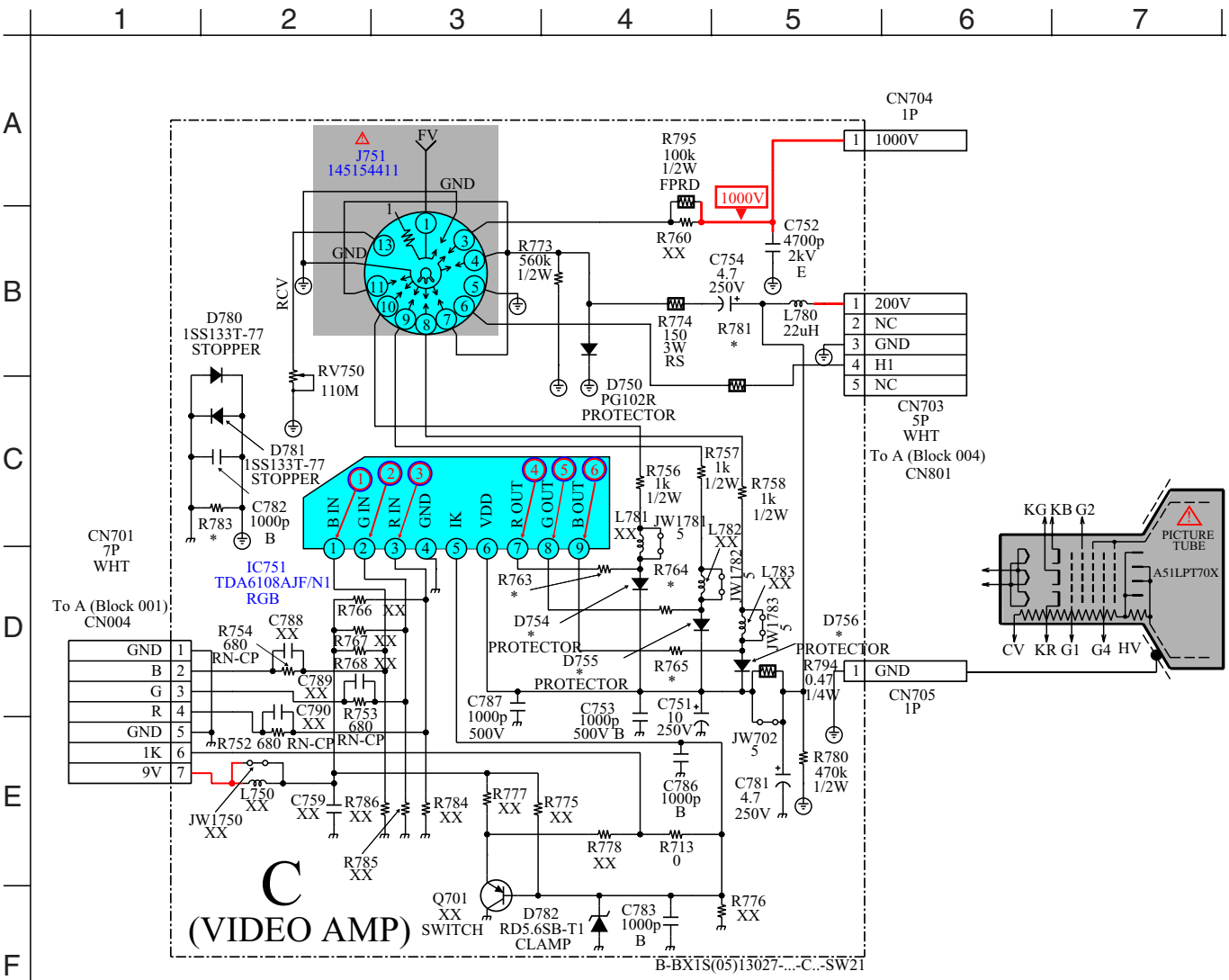
4-3-6. A Board — (Block 006)



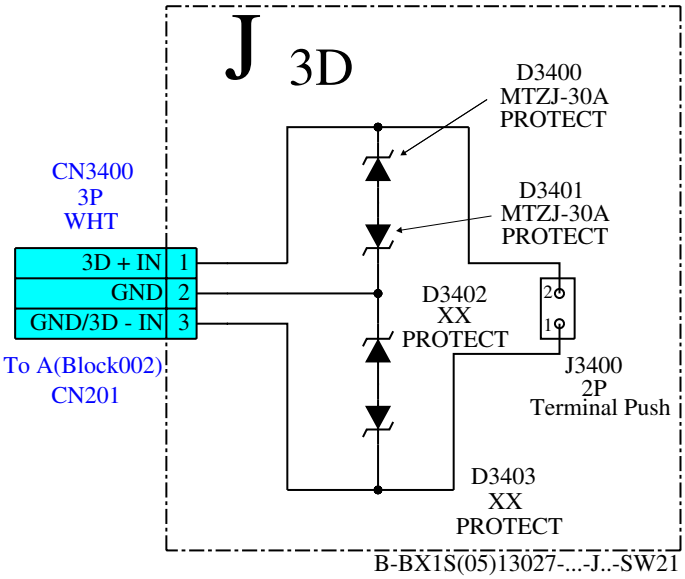
4-3-7. A Board — Heatsink (Block 007)



4-3-8. C Board and J Board Schematic Diagrams



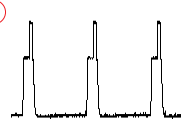
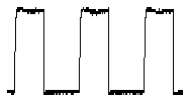
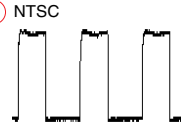
(KV-SW21M95)

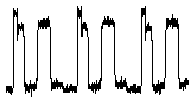
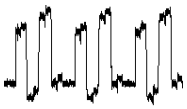
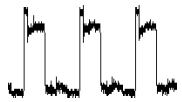
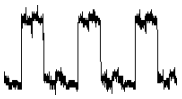
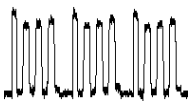
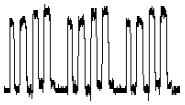


4-4. VOLTAGE MEASUREMENT AND WAVEFORMS

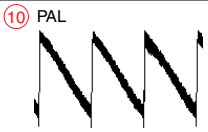
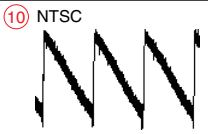
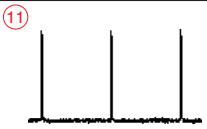
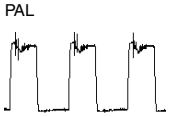
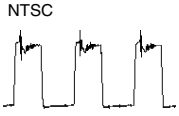
A BOARD VOLTAGE LIST AND WAVEFORMS

Ref	Pin No.	Voltage[v]
IC001	1	0
	2	0
	3	1.7
	4	3.2
	5	3.2
	6	0
	7	3.2
	8	0
	9	3.2
	10	*
	11	*
	12	0
	13	0.1
	14	2.4
	15	4.9
	16	1.8
	17	2.2
	18	0
	19	2.2
	20	2.2
	21	3.2
	① 1.040Vp-p	
	22	1.5
	② PAL 2.000Vp-p	
	② NTSC 1.960Vp-p	
	23	1.6
	③ 2.120Vp-p	
	24	1.8
	25	1.8
	26	2.3
	27	1.8
	28	0
	29	1.8
	30	1.8
	31	4.6
	32	0.4
	33	(0.3)[0.4]
	34	0
	35	0
	36	3.4
	37	3.4
	38	2.2
	39	2.4
	40	0
	41	1.9
	42	(1.6)[1.4]
	43	0.6

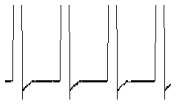
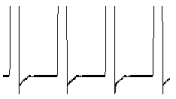
Ref	Pin No.	Voltage[v]
	44	(0.6)[0.4]
	45	8.4
	46	1.8
	47	(4.7)[4.8]
	48	1.4
	49	2.1
	50	0.1
	51	1.3
	52	0
	53	2.1
	54	2.1
	55	1.3
	56	2.1
	57	2.1
	58	1.3
	59	1.5
	60	3.4
	61	3.4
	62	(3.4)[3.3]
	63	3.4
	64	(1.5)[1.4]
	65	0.3
	④ PAL 448.0mVp-p	
	④ NTSC 392.0mVp-p	
	66	0.3
	⑤  5.520Vp-p	
	67	1.4
	⑥ PAL  3.520Vp-p	
	⑥ NTSC  3.440Vp-p	
	68	0
	69	4.9
	70	1.2
	71	1.2
	72	1.2
	73	(2.0)[1.9]
	74	1.6
	75	0.1
	76	0
	77	0.1
	78	1.2
	79	1.2
	80	1.2
	81	0

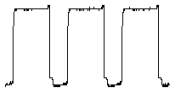
Ref	Pin No.	Voltage[v]
	82	4.9
	83	(2.4)[2.3]
	84	3.2
	85	1.4
	⑦ PAL  1.840Vp-p	
	⑦ NTSC  2.400Vp-p	
	86	1.7
	⑧ PAL  1.840Vp-p	
	⑧ NTSC  1.680Vp-p	
	87	(1.2)[1.3]
	⑨ PAL  1.960Vp-p	
	⑨ NTSC  2.040Vp-p	
	88	3.2
	89	0
	90	3.2
	91	1.6
	92	0
	93	1.8
	94	3.2
	95	0
	96	1.8
	97	2.9
	98	0.5
	99	3.2
	100	1.7
	101	0
	102	3.2
	103	0
	104	(2.4)[2.3]
	105	2.5
	106	0
	107	3.2
	108	(3.7)[3.5]
	109	(3.5)[3.2]
	110	3.2
	111	4.9
	112	0.4
	113	0

A BOARD VOLTAGE LIST AND WAVEFORMS

Ref	Pin No.	Voltage[v]
	114	0
	115	0
	116	0.1
	117	(1.8)[1.7]
	118	1.7
	119	3.2
	120	2.9
	121	0
	122	0
	123	3.2
	124	1.7
	125	0
	126	3.2
	127	(0.5)[0.4]
	128	0
IC002	I	3.2
	G	0
	O	2.9
IC003	1	0
	2	0
	3	0
	4	0
	5	3.3
	6	3.7
	7	3.2
	8	(3.2)[3.3]
IC200	1	(12.6)[12.7]
	2	0
	3	25.9
	4	0
	5	0
	6	0
	7	(12.6)[12.7]
	8	0.4
	9	0
	10	26.8
	11	11.3
	12	12.8
IC601	1	(1.5)[1.4]
	2	10.5
	3	167.9
	4	0
	5	0.3
IC602	1	11.9
	2	8.9
	3	0
	4	2.2
IC603	I	4.0
	G	0
	O	1.9
	V	2.4
IC604	I	9.0
	G	0
	O	4.9
IC607	I	4.0
	G	0
	O	1.7
IC800	1	6.1
	2	6.0
	3	5.9
	4	0
	5	5.8
	6	5.8
	7	5.8
	8	11.9
IC801	1	2.2
	2	0.7
	3	0
	4	0
	5	3.1
	6	(2.3)[2.2]
	7	6.0
	8	9.0
IC802	1	(2.7)[2.8]
	2	3.2
	3	3.2
	4	0
	5	(3.0)[3.1]
	6	(3.0)[3.1]
	7	4.5
	8	8.9
IC804	1	0.3
	⑩ PAL  632.0mVp-p	
	⑩ NTSC  688.0mVp-p	
	2	13.5
	3	(-12.2)[-11.9]
	⑪  28.80Vp-p	
	4	-13.5
	5	(196.0)[141.6]
	6	13.2
	7	0.4
	⑫ PAL 584.0mVp-p	
	⑫ NTSC 624.0mVp-p	
Q001	B	0
	C	(2.1)[2.2]
	E	0
Q006	B	3.2
	C	1.9
	E	1.9
Q007	B	0
	C	5.2
	E	0.1
Q008	B	0.1
	C	(1.0)[0.4]
	E	0
Q010	B	0.3
	C	0
	E	0.9
Q013	B	0
	C	1.7
	E	0
Q016	B	2.4
	C	0
	E	0
Q100	B	4.5
	C	8.9
	E	3.9
Q102	B	3.0
	C	2.3
	E	8.9
Q103	B	(0)[3.1]
	C	(3.0)[0.1]
	E	0
Q104	B	3.0
	C	5.5
	E	0
Q111	B	0
	C	0
	E	0
Q200	B	2.0
	C	0.1
	E	0
Q201	B	26.1
	C	26.9
	E	26.9
Q202	B	(8.9)[9.0]
	C	0
	E	8.9
Q204	B	5.3
	C	9.0
	E	0
Q205	B	2.8
	C	5.3
	E	2.3
Q206	B	2.5
	C	0.1
	E	0
Q601	B	0
	C	11.9
	E	0
Q608	B	0
	C	22.8
	E	0.1
Q609	B	0.6
	C	0.1
	E	0
Q800	B	1.6
	C	9.0
	E	1.0
Q801	B	0.3
	C	2.8
	E	0
Q802	B	0
	C	5.8
	E	0
Q803	B	2.5
	⑬ PAL  1.460Vp-p	
	⑬ NTSC  1.620Vp-p	
	C	28.1
	E	0
Q804	B	(133.4)[133.5]
	C	0.1
	E	133.9

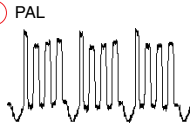
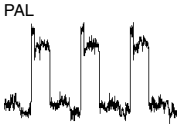
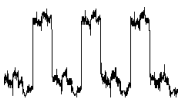
A BOARD VOLTAGE LIST AND WAVEFORMS

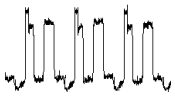
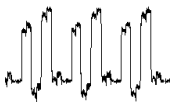
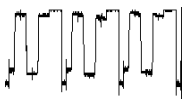
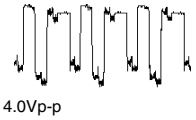
Ref	Pin No.	Voltage[v]
Q805	B	(0
	C	137.6
	⑭ PAL  326.0Vp-p	
	⑭ NTSC  324.0Vp-p	
	E	0
Q806	B	6.0
	C	8.9
	E	5.7
Q807	B	6.0
	C	0
	E	5.7

Ref	Pin No.	Voltage[v]
Q808	S	0
	G	(5.6)[5.7]
	⑮ PAL 9.60Vp-p	
	⑮ NTSC  9.40Vp-p	
	D	(9.3)[9.9]
Q814	B	0
	C	4.9
	E	0.1
Q900	B	(1.5)[1.4]
	C	0
	E	(2.2)[2.1]

Ref	Pin No.	Voltage[v]
Q901	B	0
	C	0.1
	E	0
Q902	B	0
	C	0.1
	E	0
Q8010	B	0.5
	C	0.1
	E	0
DY800	⑯ 1.440Vp-p	

C BOARD VOLTAGE LIST AND WAVEFORMS

Ref	Pin No.	Voltage[v]
IC751	1	(1.5)[1.6]
	① PAL  1.520Vp-p	
	① NTSC 1.380Vp-p	
	2	1.6
	② PAL  1.460Vp-p	
	② NTSC  1.200Vp-p	

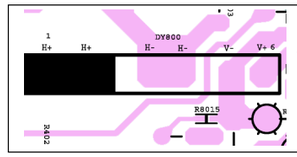
Ref	Pin No.	Voltage[v]
	3	(1.6)[1.7]
	③ PAL  1.340Vp-p	
	③ NTSC  1.640Vp-p	
	4	0
	5	(4.5)[4.6]
	6	(198.6)[198.3]
	7	(148.7)[148.3]
	④ PAL  102.0Vp-p	
	④ NTSC  114.0Vp-p	

Ref	Pin No.	Voltage[v]
	8	(149.1)[148.8]
	⑤ PAL 106.0Vp-p	
	⑤ NTSC 92.0Vp-p	
	9	(156.9)[156.4]
	⑥ PAL 108.0Vp-p	
	⑥ NTSC 96.0Vp-p	
J751	H1	0
	H2	0
	KB	(158.1)[157.0]
	KG	(150.5)[149.6]
	KR	(149.7)[149.1]

KV-SW21M20/M80/M95
RM-GA002

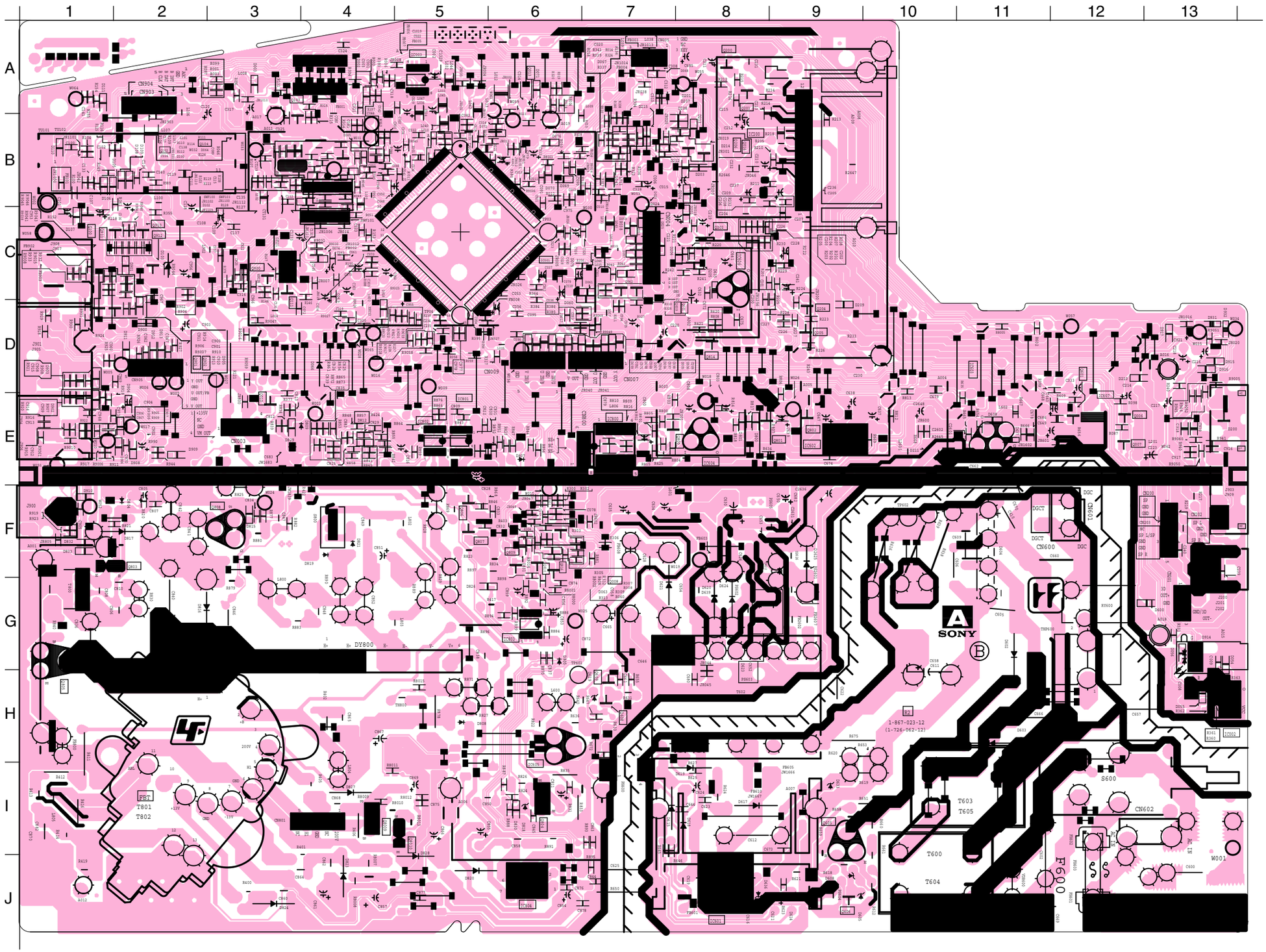
4-5. PRINTED WIRING BOARDS

A [Processor, Audio, Power Supply, Deflection, Tuner, Jack, Heat Sink]



NOTE:
The circuit indicated at left contains high voltage of over 1220 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.

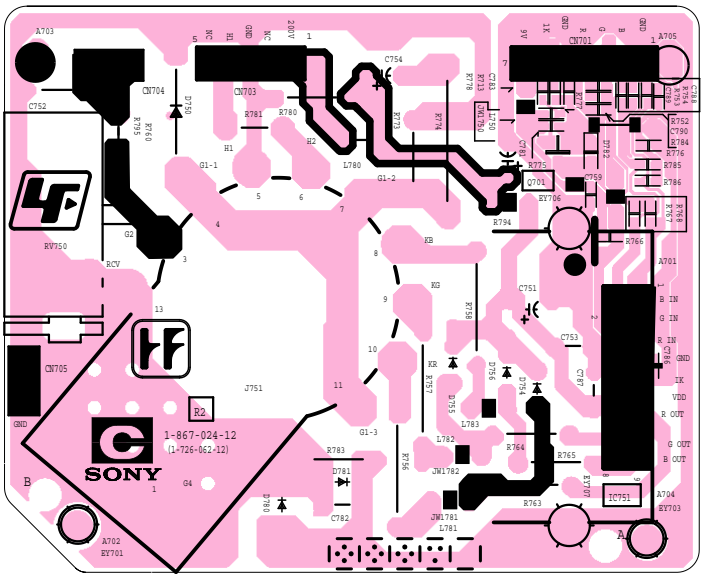
– A Board –



PRINTED WIRING BOARDS

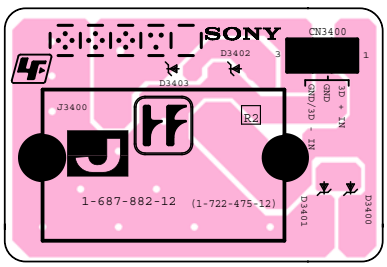
C [VIDEO AMP]

– C Board –



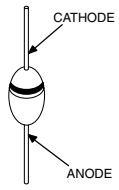
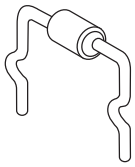
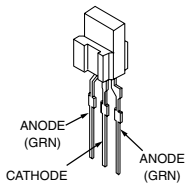
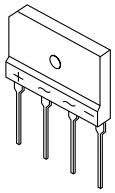
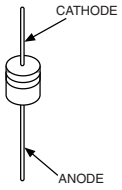
J [3D]

– J Board – (KV-SW21M95)

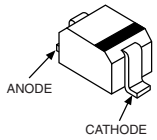
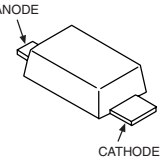
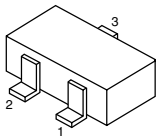
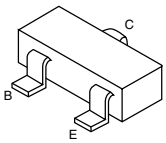
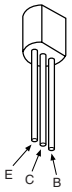
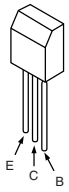


4-6. SEMICONDUCTORS

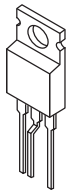
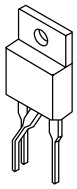
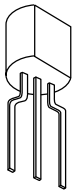
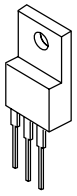
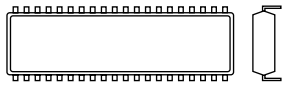
DIODE

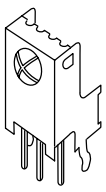
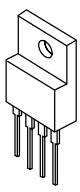
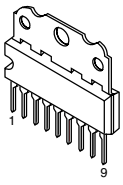
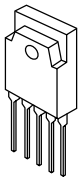
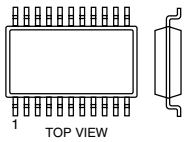
					
BY228GP	PG306R-F58 RN4Z S3L20UF4	SPB-25MVWF	D3SB60F3	HSS82-TJ MTZJ-33B MTZJ-T-77-15 MTZJ-30A RD5.1ESB2 1SS133T-77 1SS244-T-77	PG102R PG104R PG156R SB360-S 1A5G 10ERB20-TA2B5 10ERB20-TB3 11EQS10-TB5

TRANSISTOR

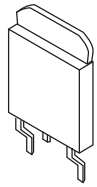
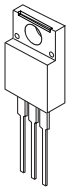
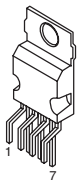
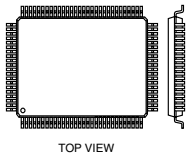
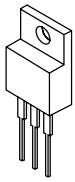
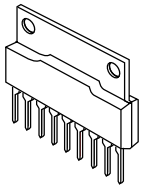
					
MMDL914T1 PDZ3.6B-115 RD5.6SB-T1	KDS114-RTK MA2ZD14001S0 MM3Z9V1ST1	1PS226-115	UN2211 UN2216 2SA1235-F 2SC1623-L5L6	KTA1279	2SC3209LK

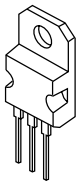
IC

				DIP  TOP VIEW Dual In-line Package Pin 6~98	
IRF614-037	FN155	2SC3779C,D-AA	2SC5885	NJM4556AD	

				SOP  TOP VIEW Small Outline L-leaded Package Pin 8~98	
RPM7240-H5	PQ018EF01SSH	TDA6108AJF/N1	STR-F6267S LF1357	CAT24WC16WI-TE13 NJM2903M UPC4558G2	

IC

					
BA18BC0FP-E2	KIA78D33P1	STV9302A	TDA12027H/N1E0B TDA12067H/N1E0B	KIA78R09API SE135N-LF38	AN17803A AN17808A

	
KIA7805API	

SECTION 5
EXPLODED VIEWS

NOTE:

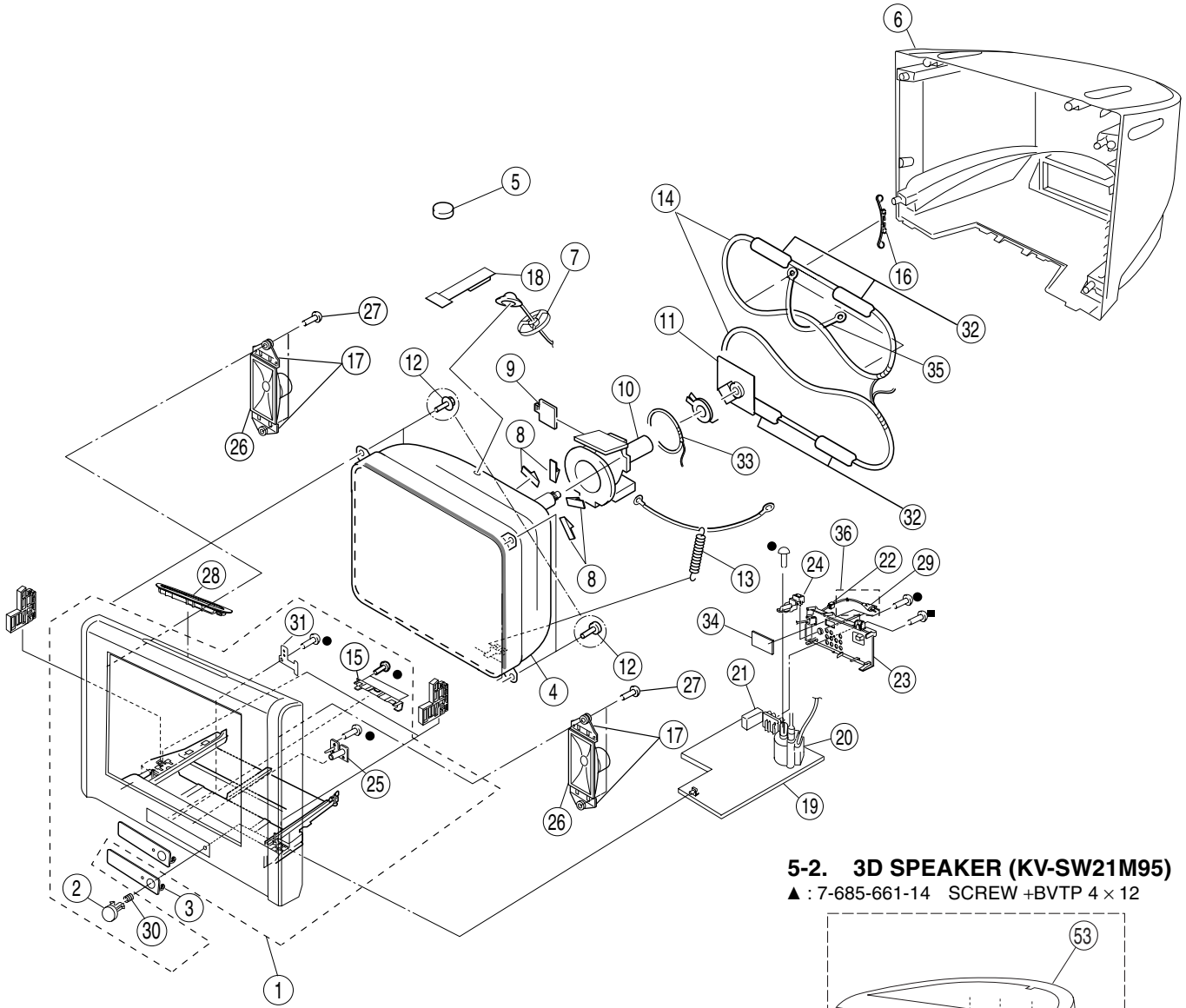
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. PICTURE TUBE AND CHASSIS

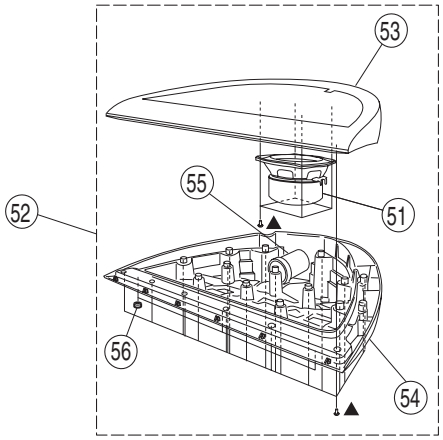
● : 7-685-648-79 SCREW +BVTP 3 × 12
■ : 7-685-663-71 SCREW +BVTP 4 × 16
▲ : 7-685-661-14 SCREW +BVTP 4 × 12

Note : The Picture Tube is upside down for KV-SW21M80(South Africa) only and the position for the anode cap and tension springs are changed accordingly.



5-2. 3D SPEAKER (KV-SW21M95)

▲ : 7-685-661-14 SCREW +BVTP 4 × 12



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-2055-723-1	BEZNET ASSY	2,15,25,30,31
2		2-584-668-01	BUTTON, POWER	
3		2-632-306-01	DOOR PRINTING (KV-SW21M20/M80)	
		2-633-086-31	DOOR PRINTING(SW) (KV-SW21M95)	
4	⚠	8-738-809-05	PICTURE TUBE (A51LPT70X)	
5		1-452-032-00	MAGNET,DISC	
6		2-583-862-01	COVER, REAR (21) (■ 8 screws)	
7		4-084-918-01	HOLDER, HV CABLE	
8		4-046-600-11	SPACER, DY	
9		4-057-714-01	PIECE, TLH CONVERGENCE	
10	⚠	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
11	*	A-1139-340-A	MOUNTED PWB, C (KV-SW21M20) (NOT SUPPLY)	
	*	A-1127-553-A	MOUNTED PWB, C (KV-SW21M80) (NOT SUPPLY)	
	*	A-1116-728-A	MOUNTED PWB(VAR), C (KV-SW21M95)	
12		4-057-862-01	SCREW, TAPPING 5+CROWN WASHER	
13		4-095-706-01	SPRING, EXTENSION	
14	⚠	1-456-280-11	DEGAUSSING COIL	
15	*	4-093-771-01	COVER,FRONT PANEL	
16		4-093-607-01	HOLDER, DGC	
17	*	4-046-981-03	BRACKET, SPEAKER	
18		4-094-690-01	PIECE A(90), CONV. CORRECT	
19	*	A-1139-337-A	COMPLETE PWB, A (KV-SW21M20) (NOT SUPPLY)	
	*	A-1138-782-A	COMPLETE PWB, A (KV-SW21M80) (NOT SUPPLY)	
	*	A-1134-889-A	COMPLETE PWB, A (KV-SW21M95)	
20	⚠	1-453-329-41	TRANSFORMER ASSY FLYBACK (NX-4751//M3A4)	
21		1-693-659-11	TUNER	
22		4-022-115-00	HOLDER, AC CORD	
23	*	4-095-890-21	BRACKET, TERMINAL(ICON) (KV-SW21M20/M80)	
	*	4-095-890-01	BRACKET, TERMINAL(ICON) (KV-SW21M95)	
24	*	4-092-370-02	BRACKET, FBT	
25	*	2-584-669-01	GUIDE, LIGHT	
26		1-825-691-12	SPEAKER (15X6.5CM)	
27		4-095-941-01	SCREW(WH DIA.16)(+P 4X16)	
28		1-479-380-11	TOP SWITCH BLOCK (KV-SW21M20/M80)	
		1-479-380-31	TOP SWITCH BLOCK (KV-SW21M95)	
29	⚠	1-824-968-11	POWER CORD (WITH CONNECTOR) (KV-SW21M80/M95)	
30		4-036-405-11	SPRING, COMPRESSION	
31		4-093-704-01	SPRING, DOOR	
32		2-629-888-01	TUBE, DGC	
33		1-437-572-11	COIL, NA ROTATION (KV-SW21M80/M95)	
34	*	A-1119-145-A	MOUNTED PWB, J (KV-SW21M95)	
35		4-068-028-51	BAND, DGC (KV-SW21M20)	
36	⚠	A-1601-726-A	POWER CORD ASSY (KV-SW21M20) (NOT SUPPLY)	

3D SPEAKER

51		1-825-971-21	LOUDSPEAKER (12CM) (KV-SW21M95)	
52		A-1119-148-A	3D BOX ASSY (KV-SW21M95)	
53	*	2-589-456-01	3D BOX, TOP (KV-SW21M95)	
54	*	2-589-457-01	3D BOX, BOTTOM (KV-SW21M95)	
55	*	2-589-458-01	SPEAKER DUCT (KV-SW21M95)	
56	*	4-068-528-01	FOOT (KV-SW21M95)	

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SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

REF NO.	PART NO.	DESCRIPTION	REMARK
*	A-1139-337-A	COMPLETE PWB, A (KV-SW21M20) (NOT SUPPLY)	
*	A-1138-782-A	COMPLETE PWB, A (KV-SW21M80) (NOT SUPPLY)	
*	A-1134-889-A	COMPLETE PWB, A (KV-SW21M95)	
		**********	
	4-382-854-01	SCREW (M3X8), P, SW (+)	
	4-382-854-21	SCREW (M3X14), P, SW (+)	
*A012	4-102-022-01	PIN(30), WIRE (KV-SW21M20/M80)	
*A015	4-055-304-01	HOLDER, LED	
*A016	4-042-408-02	PIN(45), WIRE (KV-SW21M20/M80)	
*A017	4-102-022-01	PIN(30), WIRE (KV-SW21M20/M80)	
*A018	4-042-408-02	PIN(45), WIRE (KV-SW21M20/M80)	
*A019	4-102-022-01	PIN(30), WIRE (KV-SW21M20/M80)	
		<CAPACITOR>	
C001	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C002	1-126-935-11	ELECT 470UF 20.00% 16V	
C003	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C004	1-126-933-11	ELECT 100UF 20.00% 16V	
C005	1-126-933-11	ELECT 100UF 20.00% 16V	
C006	1-126-925-91	ELECT 470UF 20.00% 10V	
C008	1-126-947-11	ELECT 47UF 20.00% 35V	
C010	1-164-315-11	CERAMIC CHIP 470PF 5.00% 50V	
C012	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C013	1-126-933-11	ELECT 100UF 20.00% 16V	
C014	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C018	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C020	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C021	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C022	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C023	1-164-505-11	CERAMIC CHIP 2.2UF 16V	
C024	1-126-965-91	ELECT 22UF 20.00% 50V	
C025	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C026	1-126-947-11	ELECT 47UF 20.00% 35V	
C028	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C029	1-126-925-91	ELECT 470UF 20.00% 10V	
C030	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C036	1-126-933-11	ELECT 100UF 20.00% 16V	
C037	1-126-963-11	ELECT 4.7UF 20.00% 50V	
C038	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C041	1-162-966-11	CERAMIC CHIP 0.0022UF 10.00% 50V	
C042	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C044	1-164-505-11	CERAMIC CHIP 2.2UF 16V	
C046	1-162-969-11	CERAMIC CHIP 0.0068UF 10.00% 25V	
C048	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C049	1-164-227-11	CERAMIC CHIP 0.022UF 10.00% 25V	
C050	1-126-964-11	ELECT 10UF 20.00% 50V	
C052	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C053	1-164-227-11	CERAMIC CHIP 0.022UF 10.00% 25V	
C054	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C055	1-100-829-11	FILM 0.15UF 5% 250V	
C056	1-126-933-11	ELECT 100UF 20.00% 16V	
C057	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C058	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C060	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C061	1-162-968-11	CERAMIC CHIP 0.0047UF 10.00% 50V	
C062	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C063	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C064	1-126-961-11	ELECT 2.2UF 20.00% 50V	
C065	1-126-962-11	ELECT 3.3UF 20.00% 50V	
C067	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C069	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C070	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C072	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C073	1-126-961-11	ELECT 2.2UF 20.00% 50V	
C077	1-165-176-11	CERAMIC CHIP 0.047UF 10.00% 16V	
C078	1-162-925-11	CERAMIC CHIP 68PF 5.00% 50V	
C080	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C081	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C082	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C083	1-162-979-11	CERAMIC CHIP 0.0027UF 10.00% 50V	
C089	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C090	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C091	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C092	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C093	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C094	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C095	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C096	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V	
C100	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C101	1-126-964-11	ELECT 10UF 20.00% 50V	
C102	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C104	1-162-927-11	CERAMIC CHIP 100PF 5.00% 50V	
C106	1-126-963-11	ELECT 4.7UF 20.00% 50V	
C107	1-126-935-11	ELECT 470UF 20.00% 16V	
C108	1-126-935-11	ELECT 470UF 20.00% 16V	
C109	1-162-968-11	CERAMIC CHIP 0.0047UF 10.00% 50V	
C111	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C112	1-162-910-11	CERAMIC CHIP 5PF 0.25PF 50V	
C112		(KV-SW21M95)	
C115	1-162-968-11	CERAMIC CHIP 0.0047UF 10.00% 50V	
C116	1-162-968-11	CERAMIC CHIP 0.0047UF 10.00% 50V	
C117	1-164-381-91	CERAMIC CHIP 62PF 5.00% 50V	
C117		(KV-SW21M20/M80)	
C117	1-164-380-11	CERAMIC CHIP 51PF 5.00% 50V	
C117		(KV-SW21M95)	
C118	1-126-965-91	ELECT 22UF 20.00% 50V	
C119	1-163-021-91	CERAMIC CHIP 0.01UF 10.00% 50V	
C120	1-126-935-11	ELECT 470UF 20.00% 16V	
C131	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C131		(KV-SW21M95)	
C133	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C135	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.		PART NO.	DESCRIPTION			
C137		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C138		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C140		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C200		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C200			(KV-SW21M20/M80)			
C200		1-125-837-91	CERAMIC CHIP	1UF	10%	6.3V
C200			(KV-SW21M95)			
C201		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C201			(KV-SW21M20/M80)			
C201		1-125-837-91	CERAMIC CHIP	1UF	10%	6.3V
C201			(KV-SW21M95)			
C202		1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C202			(KV-SW21M20/M80)			
C202		1-110-563-11	CERAMIC CHIP	0.068UF	10.00%	16V
C202			(KV-SW21M95)			
C203		1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C203			(KV-SW21M20/M80)			
C203		1-110-563-11	CERAMIC CHIP	0.068UF	10.00%	16V
C203			(KV-SW21M95)			
C204		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C204			(KV-SW21M20/M80)			
C204		1-137-374-11	MYLAR	0.047UF	5.00%	50V
C204			(KV-SW21M95)			
C205		1-126-959-11	ELECT	0.47UF	20.00%	50V
C205			(KV-SW21M20/M80)			
C206		1-162-969-11	CERAMIC CHIP	0.0068UF	10.00%	25V
C206			(KV-SW21M20/M80)			
C206		1-131-664-91	CERAMIC CHIP	0.15UF	10%	10V
C206			(KV-SW21M95)			
C207		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C207			(KV-SW21M20/M80)			
C207		1-137-374-11	MYLAR	0.047UF	5.00%	50V
C207			(KV-SW21M95)			
C208		1-162-969-11	CERAMIC CHIP	0.0068UF	10.00%	25V
C208			(KV-SW21M20/M80)			
C208		1-131-664-91	CERAMIC CHIP	0.15UF	10%	10V
C208			(KV-SW21M95)			
C209		1-126-959-11	ELECT	0.47UF	20.00%	50V
C209			(KV-SW21M20/M80)			
C210		1-126-968-11	ELECT	100UF	20.00%	50V
C211		1-126-963-11	ELECT	4.7UF	20.00%	50V
C211			(KV-SW21M20/M80)			
C211		1-126-964-11	ELECT	10UF	20.00%	50V
C211			(KV-SW21M95)			
C213		1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C214		1-126-942-61	ELECT	1000UF	20.00%	25V
C215		1-128-550-11	ELECT	2200UF	20.00%	50V
C216		1-126-965-91	ELECT	22UF	20.00%	50V
C217		1-126-942-61	ELECT	1000UF	20.00%	25V
C218		1-126-965-91	ELECT	22UF	20.00%	50V
C219		1-126-934-11	ELECT	220UF	20.00%	16V
C220		1-126-964-11	ELECT	10UF	20.00%	50V
C223		1-128-550-11	ELECT	2200UF	20.00%	50V
C223			(KV-SW21M95)			
C224		1-125-837-91	CERAMIC CHIP	1UF	10%	6.3V
C224			(KV-SW21M95)			
C226		1-165-908-11	CERAMIC CHIP	1UF	10%	10V
C226			(KV-SW21M95)			
C227		1-165-908-11	CERAMIC CHIP	1UF	10%	10V
C227			(KV-SW21M95)			
C228		1-126-961-11	ELECT	2.2UF	20.00%	50V
C228			(KV-SW21M95)			
C230		1-137-374-11	MYLAR	0.047UF	5.00%	50V
C230			(KV-SW21M95)			
C231		1-137-374-11	MYLAR	0.047UF	5.00%	50V
C232		1-137-374-11	MYLAR	0.047UF	5.00%	50V
C234		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C235		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C236		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C236			(KV-SW21M95)			
C237		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C237			(KV-SW21M95)			
C241		1-126-935-11	ELECT	470UF	20.00%	16V
C241			(KV-SW21M95)			
C300		1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
C301		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C302		1-164-505-11	CERAMIC CHIP	2.2UF		16V
C303		1-126-933-11	ELECT	100UF	20.00%	16V
C304		1-126-933-11	ELECT	100UF	20.00%	16V
C308		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C311		1-126-961-11	ELECT	2.2UF	20.00%	50V
C312		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C313		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C316		1-125-891-11	CERAMIC CHIP	0.47UF	10.00%	10V
C317		1-126-934-11	ELECT	220UF	20.00%	16V
C318		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C319		1-162-923-11	CERAMIC CHIP	47PF	5.00%	50V
C320		1-162-923-11	CERAMIC CHIP	47PF	5.00%	50V
C321		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C322		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C323		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C325		1-164-227-11	CERAMIC CHIP	0.022UF	10.00%	25V
C328		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C333		1-126-925-91	ELECT	470UF	20.00%	10V
C600	⚠	1-119-895-51	CERAMIC	4700PF	20.00%	250V
C602	⚠	1-165-538-31	FILM	0.1UF	10%	275V
C605		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C606		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C609		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C610		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C611		1-117-752-11	ELECT(BLOCK)	330UF	20.00%	450V
C612		1-117-623-11	FILM	1500PF	3.00%	1.2KV
C612			(KV-SW21M20/M95)			
C612		1-117-623-21	FILM	1500PF	3.00%	1.2KV
C612			(KV-SW21M80)			
C616		1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C619		1-136-167-00	FILM	0.15UF	5.00%	50V
C621		1-126-963-11	ELECT	4.7UF	20.00%	50V
C622	⚠	1-119-888-51	CERAMIC	2200PF	20.00%	250V
C623		1-162-967-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C624		1-126-967-11	ELECT	47UF	20.00%	50V
C625	⚠	1-127-943-51	CERAMIC	330PF	10%	250V
C626		1-102-228-00	CERAMIC	470PF	10.00%	500V
C628		1-125-772-91	CERAMIC	1500PF	10.00%	2KV
C630		1-128-549-11	ELECT	3300UF	20.00%	35V
C632		1-126-953-11	ELECT	2200UF	20.00%	35V
C634		1-126-941-11	ELECT	470UF	20.00%	25V
C635		1-126-971-11	ELECT	470UF	20.00%	50V
C637		1-126-933-11	ELECT	100UF	20.00%	16V
C638		1-126-933-11	ELECT	100UF	20.00%	16V
C639		1-126-933-11	ELECT	100UF	20.00%	16V
C641		1-126-933-11	ELECT	100UF	20.00%	16V
C643		1-117-720-11	CERAMIC CHIP	4.7UF		10V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.		PART NO.	DESCRIPTION		REMARK	
C644		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C647		1-126-935-11	ELECT	470UF	20.00%	16V
C649		1-126-933-11	ELECT	100UF	20.00%	16V
C652		1-102-228-00	CERAMIC	470PF	10.00%	500V
C653		1-102-228-00	CERAMIC	470PF	10.00%	500V
C654		1-102-228-00	CERAMIC	470PF	10.00%	500V
C657	⚠	1-127-943-51	CERAMIC	330PF	10%	250V
C660	⚠	1-165-539-31	FILM	0.22UF	10%	275V
C662		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C665		1-110-626-11	ELECT	330UF	20.00%	160V
C666	⚠	1-165-538-31	FILM	0.1UF	10%	275V
C666			(KV-SW21M95)			
C668		1-126-933-11	ELECT	100UF	20.00%	16V
C670	⚠	1-127-943-51	CERAMIC	330PF	10%	250V
C672		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C678		1-164-505-11	CERAMIC CHIP	2.2UF		16V
C680		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C682		1-115-466-91	ELECT	1000UF	20.00%	16V
C685		1-126-934-11	ELECT	220UF	20.00%	16V
C686		1-117-720-11	CERAMIC CHIP	4.7UF		10V
C800		1-126-963-11	ELECT	4.7UF	20.00%	50V
C800			(KV-SW21M80/M95)			
C803		1-126-947-11	ELECT	47UF	20.00%	35V
C803			(KV-SW21M80/M95)			
C804		1-126-964-11	ELECT	10UF	20.00%	50V
C804			(KV-SW21M80/M95)			
C805		1-126-960-11	ELECT	1UF	20.00%	50V
C806		1-106-375-12	MYLAR	0.022UF	5.00%	200V
C807		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C808		1-102-244-00	CERAMIC	220PF	10.00%	500V
C809		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C810		1-162-318-11	CERAMIC	0.001UF	10.00%	500V
C811		1-126-933-11	ELECT	100UF	20.00%	16V
C822		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C825		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C826		1-164-227-11	CERAMIC CHIP	0.022UF	10.00%	25V
C828		1-126-933-11	ELECT	100UF	20.00%	16V
C830		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C831		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C832		1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C833		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C835		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C837		1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C838		1-106-220-00	MYLAR	0.1UF	10.00%	100V
C839		1-162-966-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C840	⚠	1-117-647-21	FILM	13000PF	3.00%	1.2KV
C841		1-107-846-11	FILM	0.1UF	5.00%	400V
C842		1-100-122-21	FILM	0.022UF	5%	400V
C844		1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C845		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C846		1-162-115-00	CERAMIC	330PF	10.00%	2KV
C847		1-107-364-11	MYLAR	0.01UF	10.00%	200V
C848		1-107-364-11	MYLAR	0.01UF	10.00%	200V
C849		1-106-375-12	MYLAR	0.022UF	5.00%	200V
C850		1-106-220-00	MYLAR	0.1UF	10.00%	100V
C851		1-107-675-11	ELECT	1UF	20.00%	450V
C852		1-117-665-11	FILM	0.33UF	5.00%	250V
C854		1-126-948-11	ELECT	100UF	20.00%	35V
C855		1-107-894-11	ELECT	220UF	20%	35V
C857		1-104-666-11	ELECT	220UF	20.00%	25V

REF NO.		PART NO.	DESCRIPTION		REMARK	
C858		1-137-959-91	MYLAR	0.47UF	5%	100V
C858			(KV-SW21M20/M80)			
C858		1-137-194-81	FILM	0.47UF	5.00%	50V
C858			(KV-SW21M95)			
C860		1-162-318-11	CERAMIC	0.001UF	10.00%	500V
C861		1-104-666-11	ELECT	220UF	20.00%	25V
C862		1-162-318-11	CERAMIC	0.001UF	10.00%	500V
C863		1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C867		1-165-441-81	ELECT	33UF	20%	160V
C867			(KV-SW21M20/M95)			
C867		1-165-441-51	ELECT	33UF	20%	160V
C867			(KV-SW21M80)			
C868		1-102-228-00	CERAMIC	470PF	10.00%	500V
C869		1-107-654-11	ELECT	33UF	20.00%	250V
C870		1-106-387-00	MYLAR	0.068UF	10.00%	200V
C876		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C877		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C878		1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C879		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C879			(KV-SW21M80/M95)			
C900		1-164-505-11	CERAMIC CHIP	2.2UF		16V
C901		1-164-505-11	CERAMIC CHIP	2.2UF		16V
C902		1-126-957-11	ELECT	0.22UF	20.00%	50V
C903		1-126-935-11	ELECT	470UF	20.00%	16V
C906		1-164-346-11	CERAMIC CHIP	1UF		16V
C907		1-164-346-11	CERAMIC CHIP	1UF		16V
C908		1-164-346-11	CERAMIC CHIP	1UF		16V
C909		1-164-346-11	CERAMIC CHIP	1UF		16V
C910		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C911		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C912		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C913		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C914		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C915		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C916		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C917		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C918		1-164-346-11	CERAMIC CHIP	1UF		16V
C919		1-164-346-11	CERAMIC CHIP	1UF		16V
C922		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C925		1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C955		1-126-947-11	ELECT	47UF	20.00%	35V
C956		1-126-933-11	ELECT	100UF	20.00%	16V
C967		1-164-505-11	CERAMIC CHIP	2.2UF		16V
C975		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C979		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C1019		1-125-891-11	CERAMIC CHIP	0.47UF	10.00%	10V
C1233		1-126-961-11	ELECT	2.2UF	20.00%	50V
C1233			(KV-SW21M20/M80)			
C2602		1-102-114-00	CERAMIC	470PF	10.00%	50V
C2631		1-102-228-00	CERAMIC	470PF	10.00%	500V
C2636		1-126-972-11	ELECT	1000UF	20.00%	50V
C2648		1-126-952-11	ELECT	1000UF	20.00%	35V
			<CONNECTOR>			
* CN005		1-564-506-11	PLUG, CONNECTOR 3P			
* CN200		1-564-507-11	PLUG, CONNECTOR 4P			
* CN201		1-564-506-11	PLUG, CONNECTOR 3P (KV-SW21M95)			
* CN600		1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			
* CN601		1-691-134-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN602	⚠	1-580-843-11	PIN, CONNECTOR (POWER)			

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A

REF NO.	PART NO.	DESCRIPTION	REMARK
* CN800	1-564-506-11	PLUG, CONNECTOR 3P (KV-SW21M80/M95)	
* CN904	1-508-743-00	PIN, CONNECTOR 5P	
CT131	1-767-774-22	TRAP, CERAMIC	
CT139	1-767-775-22	TRAP, CERAMIC	
		<DIODE>	
D002	8-719-081-97	DIODE MMDL914T1	
D003	8-719-081-97	DIODE MMDL914T1	
D023	6-500-028-01	DIODE MM3Z9V1ST1	
D024	6-500-028-01	DIODE MM3Z9V1ST1	
D025	6-500-028-01	DIODE MM3Z9V1ST1	
D054	8-719-036-94	DIODE RD5.6SB-T1	
D055	8-719-036-94	DIODE RD5.6SB-T1	
D056	8-719-081-97	DIODE MMDL914T1	
D057	8-719-081-97	DIODE MMDL914T1	
D058	8-719-081-97	DIODE MMDL914T1	
D059	8-719-081-97	DIODE MMDL914T1	
D060	8-719-036-94	DIODE RD5.6SB-T1	
D061	8-719-081-97	DIODE MMDL914T1	
D062	8-719-036-94	DIODE RD5.6SB-T1	
D063	8-719-081-97	DIODE MMDL914T1	
D064	8-719-036-94	DIODE RD5.6SB-T1	
D065	8-719-036-94	DIODE RD5.6SB-T1	
D066	8-719-083-20	DIODE PG102R	
D068	8-719-036-94	DIODE RD5.6SB-T1	
D071	8-719-081-97	DIODE MMDL914T1	
D072	8-719-081-97	DIODE MMDL914T1	
D074	8-719-081-97	DIODE MMDL914T1	
D075	6-500-028-01	DIODE MM3Z9V1ST1	
D100	8-719-082-22	DIODE KDS114-RTK	
D103	8-719-982-26	DIODE MTZJ-33B	
D108	8-719-036-94	DIODE RD5.6SB-T1	
D109	8-719-036-94	DIODE RD5.6SB-T1	
D110	8-719-081-97	DIODE MMDL914T1	
D111	8-719-081-97	DIODE MMDL914T1	
D200	8-719-062-51	DIODE 1PS226-115	
D201	8-719-081-97	DIODE MMDL914T1	
D202	8-719-081-97	DIODE MMDL914T1	
D203	8-719-081-97	DIODE MMDL914T1	
D204	8-719-081-97	DIODE MMDL914T1	
D205	8-719-081-97	DIODE MMDL914T1	
D208	8-719-081-97	DIODE MMDL914T1	
D211	8-719-062-51	DIODE 1PS226-115	
D212	8-719-081-97	DIODE MMDL914T1	
D213	8-719-081-97	DIODE MMDL914T1	
D214	8-719-081-97	DIODE MMDL914T1	
D600	8-719-081-97	DIODE MMDL914T1	
D602	6-501-301-01	DIODE 1A5G	
D603	6-501-301-01	DIODE 1A5G	
D604	8-719-077-77	DIODE D3SB60F3	
D605	8-719-109-85	DIODE RD5.1ESB2	
D608	8-719-109-85	DIODE RD5.1ESB2	
D614	8-719-923-86	DIODE MTZJ-T-77-15	
D615	6-500-567-11	DIODE 10ERB20-TA2B5	
D617	6-500-567-11	DIODE 10ERB20-TA2B5	
D618	6-500-567-11	DIODE 10ERB20-TA2B5	
D619	6-500-567-11	DIODE 10ERB20-TA2B5	
D621	6-501-300-01	DIODE PG306R-F58	
D622	8-719-085-37	DIODE 11EQS10-TB5	
D623	6-500-567-31	DIODE 10ERB20-TB3	
D624	8-719-510-73	DIODE S3L20UF4	
D629	8-719-109-85	DIODE RD5.1ESB2	
D633	8-719-923-86	DIODE MTZJ-T-77-15	
D635	8-719-072-63	DIODE PDZ3.6B-115	
D637	8-719-072-70	DIODE MA2ZD14001S0	
D638	8-719-081-97	DIODE MMDL914T1	
D639	6-501-311-01	DIODE SB360-S	
D800	8-719-081-97	DIODE MMDL914T1 (KV-SW21M80/M95)	
D801	8-719-081-97	DIODE MMDL914T1 (KV-SW21M80/M95)	
D804	8-719-991-33	DIODE 1SS133T-77	
D805	8-719-991-33	DIODE 1SS133T-77	
D807	8-719-991-33	DIODE 1SS133T-77	
D808	8-719-991-33	DIODE 1SS133T-77	
D809	8-719-991-33	DIODE 1SS133T-77	
D815	6-500-028-01	DIODE MM3Z9V1ST1	
D816	6-501-299-01	DIODE BY228GP	
D817	6-501-302-01	DIODE PG156R	
D818	8-719-109-85	DIODE RD5.1ESB2	
D819	6-500-567-31	DIODE 10ERB20-TB3	
D820	8-719-083-20	DIODE PG102R	
D821	6-500-567-31	DIODE 10ERB20-TB3	
D823	8-719-074-25	DIODE PG104R	
D824	8-719-074-25	DIODE PG104R	
D827	8-719-074-25	DIODE PG104R	
D829	8-719-036-94	DIODE RD5.6SB-T1	
D830	8-719-081-97	DIODE MMDL914T1	
D832	8-719-081-97	DIODE MMDL914T1	
D833	8-719-081-97	DIODE MMDL914T1	
D914	8-719-083-18	DIODE SPB-25MVWF	
D915	8-719-036-94	DIODE RD5.6SB-T1	
D916	8-719-036-94	DIODE RD5.6SB-T1	
D918	8-719-036-94	DIODE RD5.6SB-T1	
D931	8-719-072-63	DIODE PDZ3.6B-115	
D932	8-719-072-63	DIODE PDZ3.6B-115	
D2625	8-719-510-73	DIODE S3L20UF4 (KV-SW21M20/M80)	
D2626	8-719-067-18	DIODE RN4Z (KV-SW21M95)	
		<DY CONNECTOR>	
* DY800	1-580-798-11	CONNECTOR PIN (DY) 6P	
		<FUSE>	
F600 ⚠	1-576-232-51	FUSE 5A 250V	
		<FERRITE BEAD>	
FB001	1-469-578-11	FERRITE 1.1UH	
FB005	1-469-981-21	FERRITE 0UH	
FB006	1-469-981-21	FERRITE 0UH	
FB007	1-469-981-21	FERRITE 0UH	
FB008	1-469-981-21	FERRITE 0UH (KV-SW21M20/M80)	
FB008	1-216-864-11	SHORT CHIP 0 (KV-SW21M95)	
FB101	1-414-229-11	FERRITE 0UH	
FB603	1-469-578-11	FERRITE 1.1UH	
FB608	1-412-911-31	FERRITE 0UH	
FB800	1-469-578-11	FERRITE 1.1UH	
FB2602	1-469-578-11	FERRITE 1.1UH (KV-SW21M95)	
FB2607	1-469-578-11	FERRITE 1.1UH (KV-SW21M20/M80)	

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A

REF NO.	PART NO.	DESCRIPTION		REMARK
		<FUSE HOLDER>		
FH601	1-533-223-11	FUSE HOLDER	0A	0V
FH602	1-533-223-11	FUSE HOLDER	0A	0V
		<IC>		
IC001	6-707-681-01	IC TDA12067H/N1E0B (KV-SW21M20/M80)		
IC001	6-707-677-01	IC TDA12027H/N1E0B (KV-SW21M95)		
IC002	6-704-532-01	IC RPM7240-H5		
IC003	6-705-864-01	IC CAT24WC16WI-TE13		
IC200	6-706-985-01	IC AN17808A (KV-SW21M20/M80)		
IC200	6-703-476-01	IC AN17803A (KV-SW21M95)		
IC601	6-704-263-01	IC STR-F6267S LF1357		
IC602	6-706-789-01	IC KIA78R09API		
IC603	6-703-478-01	IC PQ018EF01SSH		
IC604	8-759-646-52	IC KIA7805API		
IC605	6-705-063-01	IC SE135N-LF38		
IC606	6-706-886-01	IC KIA78D33P1		
IC607	8-759-832-05	IC BA18BC0FP-E2		
IC800	8-759-356-16	IC NJM4556AD (KV-SW21M80/M95)		
IC801	8-759-700-07	IC NJM2903M		
IC802	8-759-100-96	IC UPC4558G2		
IC804	6-703-470-01	IC STV9302A		
		<JACK>		
J200	1-770-786-22	JACK (KV-SW21M20/M80)		
J201	1-817-294-21	JACK (KV-SW21M95)		
J901	1-817-299-21	PHONO JACK 11P		
J903	1-770-329-13	JACK, PIN 3P		
		<CHIP CONDUCTOR>		
JR001	1-216-864-11	SHORT CHIP	0	
JR002	1-216-864-11	SHORT CHIP	0	
JR003	1-216-864-11	SHORT CHIP	0	
JR004	1-216-864-11	SHORT CHIP	0	
JR005	1-216-864-11	SHORT CHIP	0	
JR007	1-216-864-11	SHORT CHIP	0	
JR008	1-216-864-11	SHORT CHIP	0	
JR009	1-216-864-11	SHORT CHIP	0	
JR012	1-216-864-11	SHORT CHIP	0	
JR013	1-216-864-11	SHORT CHIP	0	
JR014	1-216-864-11	SHORT CHIP	0	
JR015	1-216-864-11	SHORT CHIP	0	
JR016	1-216-864-11	SHORT CHIP	0	
JR017	1-216-864-11	SHORT CHIP	0	
JR018	1-216-864-11	SHORT CHIP	0	
JR019	1-216-864-11	SHORT CHIP	0	
JR020	1-216-864-11	SHORT CHIP	0	
JR024	1-216-864-11	SHORT CHIP	0	
JR025	1-216-864-11	SHORT CHIP	0	
JR026	1-216-864-11	SHORT CHIP	0	
JR027	1-216-864-11	SHORT CHIP	0	
JR037	1-216-864-11	SHORT CHIP	0	
JR038	1-216-864-11	SHORT CHIP	0	
JR040	1-216-864-11	SHORT CHIP	0	
JR041	1-216-864-11	SHORT CHIP	0	
JR042	1-216-864-11	SHORT CHIP	0	
JR043	1-216-864-11	SHORT CHIP	0	
JR046	1-216-864-11	SHORT CHIP	0	
JR047	1-216-864-11	SHORT CHIP	0	
JR049	1-216-864-11	SHORT CHIP	0	
JR051	1-216-864-11	SHORT CHIP	0	
JR200	1-216-864-11	SHORT CHIP	0 (KV-SW21M95)	
JR300	1-216-864-11	SHORT CHIP	0	
JR301	1-216-864-11	SHORT CHIP	0	
JR302	1-216-864-11	SHORT CHIP	0	
JR600	1-216-864-11	SHORT CHIP	0	
JR601	1-216-864-11	SHORT CHIP	0	
JR602	1-216-864-11	SHORT CHIP	0	
JR1006	1-216-864-11	SHORT CHIP	0	
JR1011	1-216-864-11	SHORT CHIP	0	
JR1012	1-216-864-11	SHORT CHIP	0	
JR1013	1-216-864-11	SHORT CHIP	0	
JR1014	1-216-864-11	SHORT CHIP	0	
JR1016	1-216-864-11	SHORT CHIP	0	
JR1101	1-216-864-11	SHORT CHIP	0	
JR1110	1-216-864-11	SHORT CHIP	0 (KV-SW21M20/M80)	
JR1113	1-216-864-11	SHORT CHIP	0 (KV-SW21M95)	
JR1903	1-216-864-11	SHORT CHIP	0	
		<COIL>		
L003	1-414-856-11	INDUCTOR	10UH	
L004	1-414-187-11	INDUCTOR	47UH	
L005	1-414-856-11	INDUCTOR	10UH	
L006	1-414-856-11	INDUCTOR	10UH	
L007	1-414-856-11	INDUCTOR	10UH	
L008	1-414-856-11	INDUCTOR	10UH	
L009	1-414-856-11	INDUCTOR	10UH	
L012	1-412-058-11	INDUCTOR	10UH	
L040	1-469-555-21	INDUCTOR	10UH	
L041	1-469-555-21	INDUCTOR	10UH	
L042	1-469-555-21	INDUCTOR	10UH	
L043	1-469-555-21	INDUCTOR	10UH	
L044	1-469-555-21	INDUCTOR	10UH	
L045	1-469-555-21	INDUCTOR	10UH	
L046	1-469-555-21	INDUCTOR	10UH	
L047	1-469-555-21	INDUCTOR	10UH	
L100	1-414-857-11	INDUCTOR	100UH	
L101	1-410-498-11	INDUCTOR	1.2UH	
L102	1-400-557-21	FERRITE	0.22UH (KV-SW21M95)	
L103	1-410-985-42	INDUCTOR	0.22UH	
L106	1-414-187-11	INDUCTOR	47UH	
L107	1-412-062-11	INDUCTOR	47UH	
L600	1-412-533-21	INDUCTOR	47UH	
L601	1-412-533-21	INDUCTOR	47UH	
L602	1-412-529-11	INDUCTOR	22UH	
L800	1-456-848-12	COIL, HORIZONTAL LINEARITY		
L802	1-406-679-11	INDUCTOR	22MH	
L803	1-414-493-41	INDUCTOR	4.7MH	
L805	1-408-947-00	INDUCTOR	2.2MH	
L806	1-469-555-21	INDUCTOR	10UH (KV-SW21M80/M95)	
L902	1-414-187-11	INDUCTOR	47UH	
L2601	1-412-525-31	INDUCTOR	10UH	
		<PHOTO COUPLER>		
PH600 ⚠	6-600-187-11	PHOTO COUPLER	PC123Y22FZ0F	

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Replace only with part number specified.

A

REF NO.		PART NO.	DESCRIPTION		REMARK
			<IC LINK>		
PS602	⚠	1-533-597-42	IC LINK	5A	90V
PS603	⚠	1-533-597-42	IC LINK	5A	90V
PS604		1-533-597-41	IC LINK	5A	90V
PS605	⚠	1-533-597-42	IC LINK	5A	90V
PS2601	⚠	1-533-597-42	IC LINK	5A	90V
			<TRANSISTOR>		
Q001		8-729-421-22	TRANSISTOR UN2211		
Q006		8-729-424-67	TRANSISTOR UN2216		
Q007		8-729-424-67	TRANSISTOR UN2216		
Q008		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q010		8-729-600-22	TRANSISTOR 2SA1235-F		
Q016		8-729-421-22	TRANSISTOR UN2211		
Q100		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q102		8-729-022-54	TRANSISTOR 2SC3779C,D-AA		
Q103		8-729-424-67	TRANSISTOR UN2216		
Q104		8-729-424-67	TRANSISTOR UN2216		
Q111		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q200		8-729-421-22	TRANSISTOR UN2211		
Q201		8-729-600-22	TRANSISTOR 2SA1235-F		
Q202		8-729-600-22	TRANSISTOR 2SA1235-F		
Q204		8-729-120-28	TRANSISTOR 2SC1623-L5L6 (KV-SW21M95)		
Q205		8-729-120-28	TRANSISTOR 2SC1623-L5L6 (KV-SW21M95)		
Q206		8-729-421-22	TRANSISTOR UN2211		
Q601		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q605		6-550-572-01	TRANSISTOR FN155		
Q606		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q608		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q609		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q800		8-729-120-28	TRANSISTOR 2SC1623-L5L6 (KV-SW21M80/M95)		
Q801		8-729-120-28	TRANSISTOR 2SC1623-L5L6 (KV-SW21M80/M95)		
Q802		8-729-120-28	TRANSISTOR 2SC1623-L5L6 (KV-SW21M80/M95)		
Q803		8-729-140-50	TRANSISTOR 2SC3209LK		
Q804		6-550-362-01	TRANSISTOR KTA1279		
Q805		6-550-410-01	TRANSISTOR 2SC5885		
Q806		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q807		8-729-600-22	TRANSISTOR 2SA1235-F		
Q808		8-729-053-33	TRANSISTOR IRF614-037		
Q814		8-729-120-28	TRANSISTOR 2SC1623-L5L6		
Q900		8-729-600-22	TRANSISTOR 2SA1235-F		
Q901		8-729-424-67	TRANSISTOR UN2216		
Q902		8-729-424-67	TRANSISTOR UN2216		
Q8009		6-550-362-01	TRANSISTOR KTA1279		
Q8010		8-729-140-50	TRANSISTOR 2SC3209LK		
			<RESISTOR>		
R001		1-216-829-11	METAL CHIP	4.7K	5% 1/10W
R002		1-216-809-11	METAL CHIP	100	5% 1/10W
R003		1-216-829-11	METAL CHIP	4.7K	5% 1/10W
R004		1-216-809-11	METAL CHIP	100	5% 1/10W
R010		1-216-833-11	METAL CHIP	10K	5% 1/10W
R011		1-216-817-11	METAL CHIP	470	5% 1/10W
R012		1-216-825-11	METAL CHIP	2.2K	5% 1/10W
R014		1-216-809-11	METAL CHIP	100	5% 1/10W
R015		1-216-823-11	METAL CHIP	1.5K	5% 1/10W
R018		1-216-809-11	METAL CHIP	100	5% 1/10W
R020		1-216-809-11	METAL CHIP	100	5% 1/10W
R021		1-216-295-91	SHORT CHIP	0	

REF NO.	PART NO.	DESCRIPTION		REMARK	
R024	1-216-809-11	METAL CHIP	100	5%	1/10W
R025	1-216-809-11	METAL CHIP	100	5%	1/10W
R026	1-216-809-11	METAL CHIP	100	5%	1/10W
R029	1-216-809-11	METAL CHIP	100	5%	1/10W
R030	1-216-809-11	METAL CHIP	100	5%	1/10W
R038	1-216-809-11	METAL CHIP	100	5%	1/10W
R039	1-216-809-11	METAL CHIP	100	5%	1/10W
R041	1-216-809-11	METAL CHIP	100	5%	1/10W
R042	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R044	1-216-834-11	METAL CHIP	12K	5%	1/10W
R045	1-216-809-11	METAL CHIP	100	5%	1/10W
R046	1-216-809-11	METAL CHIP	100	5%	1/10W
R048	1-216-809-11	METAL CHIP	100	5%	1/10W
R051	1-218-885-11	METAL CHIP	39K	0.50%	1/10W
R056	1-216-809-11	METAL CHIP	100	5%	1/10W
R058	1-216-809-11	METAL CHIP	100	5%	1/10W
R059	1-216-821-11	METAL CHIP	1K	5%	1/10W
R060	1-216-809-11	METAL CHIP	100	5%	1/10W
R061	1-216-819-11	METAL CHIP	680	5%	1/10W
R087	1-216-813-11	METAL CHIP	220	5%	1/10W
R088	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R096	1-216-813-11	METAL CHIP	220	5%	1/10W
R097	1-216-813-11	METAL CHIP	220	5%	1/10W
R098	1-216-813-11	METAL CHIP	220	5%	1/10W
R099	1-216-813-11	METAL CHIP	220	5%	1/10W
R100	1-216-821-11	METAL CHIP	1K	5%	1/10W
R103	1-211-981-11	METAL CHIP	33	0.50%	1/10W
R106	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R107	1-216-828-11	METAL CHIP	3.9K	5%	1/10W
R108	1-216-821-11	METAL CHIP	1K	5%	1/10W
R109	1-216-019-00	RES-CHIP	56	5%	1/10W
R110	1-216-821-11	METAL CHIP	1K	5%	1/10W
R111	1-216-833-11	METAL CHIP	10K	5%	1/10W
R112	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R113	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R114	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R115	1-216-809-11	METAL CHIP	100	5%	1/10W
R116	1-216-809-11	METAL CHIP	100	5%	1/10W
R118	1-216-809-11	METAL CHIP	100	5%	1/10W
R119	1-211-981-11	METAL CHIP	33	0.50%	1/10W
R121	1-215-925-11	METAL OXIDE	22K	5%	3W
R128	1-216-864-11	SHORT CHIP	0 (KV-SW21M95)		
R131	1-216-809-11	METAL CHIP	100	5%	1/10W
R146	1-216-821-11	METAL CHIP	1K	5%	1/10W
R146		(KV-SW21M95)			
R147	1-216-813-11	METAL CHIP	220	5%	1/10W
R147		(KV-SW21M95)			
R148	1-211-969-11	METAL CHIP	10	0.50%	1/10W
R148		(KV-SW21M95)			
R149	1-216-864-11	SHORT CHIP	0		
R150	1-216-809-11	METAL CHIP	100	5%	1/10W
R152	1-216-864-11	SHORT CHIP	0		
R153	1-216-853-11	METAL CHIP	470K	5%	1/10W
R153		(KV-SW21M20/M80)			
R153	1-218-839-11	METAL CHIP	470	0.50%	1/10W
R153		(KV-SW21M95)			
R154	1-216-821-11	METAL CHIP	1K	5%	1/10W
R155	1-216-837-11	METAL CHIP	22K	5%	1/10W
R200	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R200		(KV-SW21M20/M80)			
R200	1-216-864-11	SHORT CHIP	0		
R200		(KV-SW21M95)			

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R201	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R201		(KV-SW21M20/M80)			
R201	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R201		(KV-SW21M95)			
R202	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R202		(KV-SW21M20/M80)			
R202	1-216-839-11	METAL CHIP	33K	5%	1/10W
R202		(KV-SW21M95)			
R203	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R203		(KV-SW21M20/M80)			
R203	1-216-864-11	SHORT CHIP	0 (KV-SW21M95)		
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R204		(KV-SW21M20/M80)			
R204	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R204		(KV-SW21M95)			
R205	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R205		(KV-SW21M20/M80)			
R205	1-216-839-11	METAL CHIP	33K	5%	1/10W
R205		(KV-SW21M95)			
R207	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R207		(KV-SW21M20/M80)			
R207	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R207		(KV-SW21M95)			
R208	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R208		(KV-SW21M20/M80)			
R208	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R208		(KV-SW21M95)			
R210	1-216-835-11	METAL CHIP	15K	5%	1/10W
R210		(KV-SW21M20/M80)			
R210	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R210		(KV-SW21M95)			
R211	1-216-835-11	METAL CHIP	15K	5%	1/10W
R211		(KV-SW21M20/M80)			
R211	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R211		(KV-SW21M95)			
R212	1-216-864-11	SHORT CHIP	0		
R213	1-216-833-11	METAL CHIP	10K	5%	1/10W
R213		(KV-SW21M20/M80)			
R213	1-216-835-11	METAL CHIP	15K	5%	1/10W
R213		(KV-SW21M95)			
R214	1-216-839-11	METAL CHIP	33K	5%	1/10W
R214		(KV-SW21M20/M80)			
R214	1-216-835-11	METAL CHIP	15K	5%	1/10W
R214		(KV-SW21M95)			
R215	1-216-833-11	METAL CHIP	10K	5%	1/10W
R216	1-216-833-11	METAL CHIP	10K	5%	1/10W
R217	1-249-411-11	CARBON	330	5%	1/4W
R218	1-216-295-91	SHORT CHIP	0		
R219	1-249-411-11	CARBON	330	5%	1/4W
R220	1-216-864-11	SHORT CHIP	0		
R221	1-216-821-11	METAL CHIP	1K	5%	1/10W
R222	1-216-817-11	METAL CHIP	470	5%	1/10W
R222		(KV-SW21M95)			
R223	1-216-833-11	METAL CHIP	10K	5%	1/10W
R223		(KV-SW21M95)			
R224	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R224		(KV-SW21M95)			
R225	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R225		(KV-SW21M95)			
R226	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R226		(KV-SW21M95)			
R227	1-216-834-11	METAL CHIP	12K	5%	1/10W
R227		(KV-SW21M95)			

REF NO.	PART NO.	DESCRIPTION		REMARK	
R228	1-216-834-11	METAL CHIP	12K	5%	1/10W
R228		(KV-SW21M95)			
R229	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R229		(KV-SW21M95)			
R230	1-216-864-11	SHORT CHIP	0 (KV-SW21M95)		
R232	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R232		(KV-SW21M95)			
R233	1-249-401-11	CARBON	47	5%	1/4W
R233		(KV-SW21M95)			
R234	1-249-401-11	CARBON	47	5%	1/4W
R235	1-249-401-11	CARBON	47	5%	1/4W
R236	1-216-833-11	METAL CHIP	10K	5%	1/10W
R236		(KV-SW21M20/M80)			
R236	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R236		(KV-SW21M95)			
R237	1-216-809-11	METAL CHIP	100	5%	1/10W
R238	1-216-809-11	METAL CHIP	100	5%	1/10W
R241	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R242	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R243	1-247-791-91	CARBON	22	5%	1/4W
R243		(KV-SW21M95)			
R300	1-216-809-11	METAL CHIP	100	5%	1/10W
R301	1-216-859-11	METAL CHIP	1.5M	5%	1/10W
R303	1-216-861-11	METAL CHIP	2.2M	5%	1/10W
R304	1-216-845-11	METAL CHIP	100K	5%	1/10W
R307	1-216-864-11	SHORT CHIP	0		
R309	1-216-857-11	METAL CHIP	1M	5%	1/10W
R310	1-216-821-11	METAL CHIP	1K	5%	1/10W
R311	1-216-841-11	METAL CHIP	47K	5%	1/10W
R312	1-216-857-11	METAL CHIP	1M	5%	1/10W
R313	1-216-847-11	METAL CHIP	150K	5%	1/10W
R314	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R315	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R317	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R320	1-218-863-11	METAL CHIP	4.7K	0.50%	1/10W
R322	1-218-863-11	METAL CHIP	4.7K	0.50%	1/10W
R323	1-216-809-11	METAL CHIP	100	5%	1/10W
R324	1-216-864-11	SHORT CHIP	0		
R331	1-216-809-11	METAL CHIP	100	5%	1/10W
R336	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R337	1-216-817-11	METAL CHIP	470	5%	1/10W
R338	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R339	1-216-809-11	METAL CHIP	100	5%	1/10W
R340	1-216-833-11	METAL CHIP	10K	5%	1/10W
R341	1-216-809-11	METAL CHIP	100	5%	1/10W
R355	1-216-837-11	METAL CHIP	22K	5%	1/10W
R356	1-216-864-11	SHORT CHIP	0		
R360	1-216-864-11	SHORT CHIP	0		
R363	1-216-864-11	SHORT CHIP	0		
R364	1-216-821-11	METAL CHIP	1K	5%	1/10W
R377	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R379	1-216-843-11	METAL CHIP	68K	5%	1/10W
R380	1-216-809-11	METAL CHIP	100	5%	1/10W
R384	1-216-809-11	METAL CHIP	100	5%	1/10W
R385	1-216-809-11	METAL CHIP	100	5%	1/10W
R386	1-216-809-11	METAL CHIP	100	5%	1/10W
R393	1-216-809-11	METAL CHIP	100	5%	1/10W
R394	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R395	1-216-845-11	METAL CHIP	100K	5%	1/10W
R398	1-216-797-11	METAL CHIP	10	5%	1/10W
R400	1-260-288-11	CARBON	0.47	5%	1/2W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R401	1-260-288-11	CARBON	0.47	5%	1/2W
R405	1-260-288-11	CARBON	0.47	5%	1/2W
R406	1-260-127-11	CARBON	220K	5%	1/2W
R411	1-214-909-00	METAL	68K	1%	1/2W
R412	1-214-761-00	METAL	22K	1%	1/4W
R413	1-215-449-00	METAL	15K	1%	1/4W
R414	1-260-336-11	CARBON	4.7K	5%	1/2W
R416	1-260-107-11	CARBON	4.7K	5%	1/2W
R420	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R421	1-216-833-11	METAL CHIP	10K	5%	1/10W
R423	1-216-864-11	SHORT CHIP	0		
R424	1-218-899-11	METAL CHIP	150K	0.50%	1/16W
R602	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R609	1-216-833-11	METAL CHIP	10K	5%	1/10W
R612	1-215-425-00	METAL	1.5K	1%	1/4W
R616	1-205-998-11	CEMENTED	1	5%	10W
R618	1-249-432-11	CARBON	18K	5%	1/4W
R619	1-216-361-00	METAL OXIDE	0.22	5%	2W
R620	1-216-362-21	METAL OXIDE	0.27	5%	2W
R620		(KV-SW21M20/M95)			
R620	1-243-946-21	METAL OXIDE	0.27	5%	2W
R620		(KV-SW21M80)			
R621	1-249-409-11	CARBON	220	5%	1/4W
R623	1-218-877-11	METAL CHIP	18K	0.50%	1/10W
R624	1-215-429-00	METAL	2.2K	1%	1/4W
R625	1-216-864-11	SHORT CHIP	0		
R627	1-249-385-11	CARBON	2.2	5%	1/4W
R631	1-247-847-91	CARBON	4.7K	5%	1/4W
R631		(KV-SW21M20/M80)			
R631	1-249-425-11	CARBON	4.7K	5%	1/4W
R631		(KV-SW21M95)			
R634	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R635	1-216-833-11	METAL CHIP	10K	5%	1/10W
R636	1-249-421-11	CARBON	2.2K	5%	1/4W
R638	1-240-262-11	CEMENTED	0.68	5%	10W
R645	1-218-899-11	METAL CHIP	150K	0.50%	1/16W
R646	1-218-851-11	METAL CHIP	1.5K	0.50%	1/10W
R647	1-216-821-11	METAL CHIP	1K	5%	1/10W
R650	⚠ 1-240-917-91	METAL	8.2M	5%	1W
R655	1-216-809-11	METAL CHIP	100	5%	1/10W
R656	1-249-381-11	CARBON	1	5%	1/4W
R658	1-245-464-31	METAL	120K	1%	1/4W
R658		(KV-SW21M20/M80)			
R658	1-245-464-21	METAL	120K	1%	1/4W
R658		(KV-SW21M95)			
R659	1-245-470-21	METAL	220K	1%	1/4W
R659		(KV-SW21M95)			
R660	1-245-478-31	METAL	470K	1%	1/4W
R660		(KV-SW21M20/M80)			
R660	1-245-478-21	METAL	470K	1%	1/4W
R660		(KV-SW21M95)			
R661	1-245-480-31	METAL	560K	1%	1/4W
R661		(KV-SW21M20/M80)			
R661	1-245-480-21	METAL	560K	1%	1/4W
R661		(KV-SW21M95)			
R667	1-216-821-11	METAL CHIP	1K	5%	1/10W
R668	1-216-839-11	METAL CHIP	33K	5%	1/10W
R800	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R800		(KV-SW21M80/M95)			
R801	1-216-864-11	SHORT CHIP	0		
R801		(KV-SW21M80/M95)			
R802	1-216-833-11	METAL CHIP	10K	5%	1/10W
R802		(KV-SW21M80/M95)			
R803	1-216-833-11	METAL CHIP	10K	5%	1/10W
R803		(KV-SW21M80/M95)			
R804	1-216-864-11	SHORT CHIP	0		
R804		(KV-SW21M80/M95)			
R805	1-216-837-11	METAL CHIP	22K	5%	1/10W
R805		(KV-SW21M80/M95)			
R806	1-216-864-11	SHORT CHIP	0		
R806		(KV-SW21M80/M95)			
R807	1-216-819-11	METAL CHIP	680	5%	1/10W
R807		(KV-SW21M80/M95)			
R808	1-216-833-11	METAL CHIP	10K	5%	1/10W
R808		(KV-SW21M80/M95)			
R809	1-216-833-11	METAL CHIP	10K	5%	1/10W
R809		(KV-SW21M80/M95)			
R810	1-216-833-11	METAL CHIP	10K	5%	1/10W
R810		(KV-SW21M80/M95)			
R812	1-216-837-11	METAL CHIP	22K	5%	1/10W
R812		(KV-SW21M80/M95)			
R813	1-216-837-11	METAL CHIP	22K	5%	1/10W
R813		(KV-SW21M80/M95)			
R814	1-216-809-11	METAL CHIP	100	5%	1/10W
R814		(KV-SW21M80/M95)			
R815	1-216-837-11	METAL CHIP	22K	5%	1/10W
R815		(KV-SW21M80/M95)			
R816	1-216-864-11	SHORT CHIP	0 (KV-SW21M80/M95)		
R817	1-216-833-11	METAL CHIP	10K	5%	1/10W
R817		(KV-SW21M80/M95)			
R818	1-216-833-11	METAL CHIP	10K	5%	1/10W
R818		(KV-SW21M80/M95)			
R820	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R821	1-216-837-11	METAL CHIP	22K	5%	1/10W
R822	1-249-417-11	CARBON	1K	5%	1/4W
R823	1-245-468-31	METAL	180K	1%	1/4W
R823		(KV-SW21M20/M80)			
R823	1-245-468-21	METAL	180K	1%	1/4W
R823		(KV-SW21M95)			
R824	1-216-839-11	METAL CHIP	33K	5%	1/10W
R825	1-243-606-71	METAL OXIDE	1K	5%	3W
R825		(KV-SW21M20/M95)			
R825	1-215-917-21	METAL OXIDE	1K	5%	3W
R825		(KV-SW21M80)			
R826	1-247-891-00	CARBON	330K	5%	1/4W
R827	1-216-369-00	METAL OXIDE	1	5%	2W
R827		(KV-SW21M20/M95)			
R827	1-216-369-00	METAL OXIDE	1	5%	2W
R827		(KV-SW21M80)			
R828	1-243-606-71	METAL OXIDE	1K	5%	3W
R828		(KV-SW21M20/M95)			
R828	1-215-917-21	METAL OXIDE	1K	5%	3W
R828		(KV-SW21M80)			
R829	1-243-606-71	METAL OXIDE	1K	5%	3W
R829		(KV-SW21M20/M95)			
R829	1-215-917-21	METAL OXIDE	1K	5%	3W
R829		(KV-SW21M80)			
R830	1-260-332-51	CARBON	2.2K	5%	1/2W
R831	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R833	1-260-125-11	CARBON	150K	5%	1/2W
R834	1-245-468-31	METAL	180K	1%	1/4W
R834		(KV-SW21M20/M80)			
R834	1-245-468-21	METAL	180K	1%	1/4W
R834		(KV-SW21M95)			
R835	1-260-127-11	CARBON	220K	5%	1/2W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A

REF NO.	PART NO.	DESCRIPTION		REMARK	
R838	1-216-838-11	METAL CHIP	27K	5%	1/10W
R839	1-216-864-11	SHORT CHIP	0		
R843	1-216-864-11	SHORT CHIP	0		
R844	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R846	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R847	1-216-833-11	METAL CHIP	10K	5%	1/10W
R851	1-216-821-11	METAL CHIP	1K	5%	1/10W
R852	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R853	1-218-859-11	METAL CHIP	3.3K	0.50%	1/10W
R854	1-218-877-11	METAL CHIP	18K	0.50%	1/10W
R855	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R856	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R859	1-218-883-11	METAL CHIP	33K	0.50%	1/10W
R861	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R864	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R865	1-216-821-11	METAL CHIP	1K	5%	1/10W
R866	1-218-895-11	METAL CHIP	100K	0.50%	1/10W
R868	1-249-393-11	CARBON	10	5%	1/4W
R869	1-249-381-11	CARBON	1	5%	1/4W
R870	1-218-859-11	METAL CHIP	3.3K	0.50%	1/10W
R871	1-243-692-71	METAL OXIDE	220	5%	1W
R871		(KV-SW21M20/M95)			
R871	1-243-692-21	METAL OXIDE	220	5%	1W
R871		(KV-SW21M80)			
R872	1-216-864-11	SHORT CHIP	0		
R873	1-216-841-11	METAL CHIP	47K	5%	1/10W
R876	1-216-833-11	METAL CHIP	10K	5%	1/10W
R877	1-216-849-11	METAL CHIP	220K	5%	1/10W
R878	1-216-349-00	METAL OXIDE	1	5%	1W
R879	1-245-470-21	METAL	220K	1%	1/4W
R879		(KV-SW21M95)			
R880	1-245-470-21	METAL	220K	1%	1/4W
R880		(KV-SW21M95)			
R881	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R882	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R883	1-249-421-11	CARBON	2.2K	5%	1/4W
R887	1-216-837-11	METAL CHIP	22K	5%	1/10W
R888	1-218-887-11	METAL CHIP	47K	0.50%	1/10W
R889	1-243-531-71	METAL OXIDE	100	5%	3W
R889		(KV-SW21M20/M95)			
R889	1-243-531-21	METAL OXIDE	100	5%	3W
R889		(KV-SW21M80)			
R890	1-215-910-00	METAL OXIDE	68	5%	3W
R890		(KV-SW21M20/M95)			
R890	1-215-900-21	METAL OXIDE	22K	5%	2W
R890		(KV-SW21M80)			
R891	1-249-385-11	CARBON	2.2	5%	1/4W
R893	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R895	1-218-859-11	METAL CHIP	3.3K	0.50%	1/10W
R902	1-216-821-11	METAL CHIP	1K	5%	1/10W
R904	1-216-821-11	METAL CHIP	1K	5%	1/10W
R905	1-216-840-11	METAL CHIP	39K	5%	1/10W
R906	1-216-817-11	METAL CHIP	470	5%	1/10W
R907	1-216-840-11	METAL CHIP	39K	5%	1/10W
R908	1-216-840-11	METAL CHIP	39K	5%	1/10W
R909	1-216-840-11	METAL CHIP	39K	5%	1/10W
R910	1-216-817-11	METAL CHIP	470	5%	1/10W
R911	1-216-813-11	METAL CHIP	220	5%	1/10W
R913	1-216-853-11	METAL CHIP	470K	5%	1/10W
R914	1-216-853-11	METAL CHIP	470K	5%	1/10W
R915	1-216-849-11	METAL CHIP	220K	5%	1/10W
R916	1-216-849-11	METAL CHIP	220K	5%	1/10W
R917	1-218-285-11	METAL CHIP	75	5%	1/10W
R920	1-216-849-11	METAL CHIP	220K	5%	1/10W
R921	1-216-849-11	METAL CHIP	220K	5%	1/10W
R924	1-216-853-11	METAL CHIP	470K	5%	1/10W
R925	1-216-813-11	METAL CHIP	220	5%	1/10W
R926	1-216-813-11	METAL CHIP	220	5%	1/10W
R927	1-216-813-11	METAL CHIP	220	5%	1/10W
R928	1-218-285-11	METAL CHIP	75	5%	1/10W
R929	1-218-285-11	METAL CHIP	75	5%	1/10W
R930	1-218-285-11	METAL CHIP	75	5%	1/10W
R931	1-216-807-11	METAL CHIP	68	5%	1/10W
R932	1-216-864-11	SHORT CHIP	0		
R933	1-216-864-11	SHORT CHIP	0		
R940	1-216-849-11	METAL CHIP	220K	5%	1/10W
R941	1-216-849-11	METAL CHIP	220K	5%	1/10W
R945	1-216-833-11	METAL CHIP	10K	5%	1/10W
R946	1-216-833-11	METAL CHIP	10K	5%	1/10W
R989	1-216-833-11	METAL CHIP	10K	5%	1/10W
R2646	1-249-381-11	CARBON	1	5%	1/4W
R2647	1-249-429-11	CARBON	10K	5%	1/4W
R8003	1-216-809-11	METAL CHIP	100	5%	1/10W
R8003		(KV-SW21M80/M95)			
R8004	1-216-809-11	METAL CHIP	100	5%	1/10W
R8004		(KV-SW21M80/M95)			
R8005	1-218-871-11	METAL CHIP	10K	0.50%	1/10W
R8005		(KV-SW21M80/M95)			
R8009	1-218-867-11	METAL CHIP	6.8K	0.50%	1/10W
R8010	1-245-464-31	METAL	120K	1%	1/4W
R8010		(KV-SW21M20/M80)			
R8010	1-245-464-21	METAL	120K	1%	1/4W
R8010		(KV-SW21M95)			
R8011	1-216-841-11	METAL CHIP	47K	5%	1/10W
R8012	1-216-841-11	METAL CHIP	47K	5%	1/10W
R8013	1-245-462-31	METAL	100K	1%	1/4W
R8013		(KV-SW21M20/M80)			
R8013	1-245-462-21	METAL	100K	1%	1/4W
R8013		(KV-SW21M95)			
R9005	1-216-864-11	SHORT CHIP	0		
R9006	1-216-864-11	SHORT CHIP	0		
R9017	1-216-809-11	METAL CHIP	100	5%	1/10W
R9018	1-216-809-11	METAL CHIP	100	5%	1/10W
R9019	1-216-809-11	METAL CHIP	100	5%	1/10W
R9020	1-216-809-11	METAL CHIP	100	5%	1/10W
R9021	1-216-809-11	METAL CHIP	100	5%	1/10W
R9022	1-216-809-11	METAL CHIP	100	5%	1/10W
R9023	1-216-809-11	METAL CHIP	100	5%	1/10W
R9025	1-216-809-11	METAL CHIP	100	5%	1/10W
R9026	1-216-838-11	METAL CHIP	27K	5%	1/10W
R9027	1-216-838-11	METAL CHIP	27K	5%	1/10W
R9028	1-216-809-11	METAL CHIP	100	5%	1/10W
R9030	1-216-809-11	METAL CHIP	100	5%	1/10W
R9031	1-216-809-11	METAL CHIP	100	5%	1/10W
R9036	1-216-809-11	METAL CHIP	100	5%	1/10W
R9050	1-216-864-11	SHORT CHIP	0		
R9053	1-218-285-11	METAL CHIP	75	5%	1/10W

<RELAY>

RY600	⚠	1-755-198-12	RELAY, AC POWER

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A **C**

REF NO.		PART NO.	DESCRIPTION	REMARK
			<SWITCH>	
S600	⚠	1-786-649-12	SWITCH, AC POWER PUSH	
S800		1-572-707-11	SWITCH, LEVER	
SWF100		1-781-042-11	FILTER, SURFACE WAVE (KV-SW21M20/M80)	
SWF100		1-781-040-11	FILTER, SURFACE WAVE (K082) (KV-SW21M95)	
SWF101		1-767-302-11	FILTER, SURFACE WAVE (KV-SW21M95)	
			<TRANSFORMER>	
T600	⚠	1-435-212-11	LINE FILTER COIL	
T602	⚠	1-439-695-21	CONVERTER TRANSFORMER (SRT)	
T602			(KV-SW21M20/M80)	
T602	⚠	1-439-694-11	CONVERTER TRANSFORMER (SRT)	
T602			(KV-SW21M95)	
T603	⚠	1-456-354-21	LINE FILTER COIL (KV-SW21M95)	
T800		1-437-936-21	FERRITE TRANSFORMER (HDT)	
T801	⚠	1-453-329-41	TRANSFORMER ASSY FLYBACK	
T801			(NX-4751//M3A4)	
			<THERMISTOR>	
THP600	⚠	1-805-810-11	THERMISTOR, PTC	
TP02		1-536-354-00	POST PIN	
TP03		1-536-354-00	POST PIN	
TP04		1-536-354-00	POST PIN	
TP601		1-536-354-00	POST PIN	
TP602		1-536-354-00	POST PIN	
			<TUNER>	
TU102		1-693-659-11	TUNER	
			<VARISTOR>	
VDR600		1-804-995-11	VARISTOR	
			<CRYSTAL>	
X001		1-795-839-21	QUARTZ CRYSTAL UNIT (KV-SW21M20)	
X001		1-813-311-21	QUARTS CRYSTAL UNIT (KV-SW21M80/M95)	

****

	*	A-1139-340-A	MOUNTED PWB, C (KV-SW21M20) (NOT SUPPLY)
	*	A-1127-553-A	MOUNTED PWB, C (KV-SW21M80) (NOT SUPPLY)
	*	A-1116-728-A	MOUNTED PWB, C (KV-SW21M95)
			**********
		4-382-854-01	SCREW (M3X8), P, SW (+)
* A705		4-102-022-01	PIN(30), WIRE

			<CAPACITOR>		
C751		1-107-961-91	ELECT	10UF	20%	250V
C752		1-115-350-51	CERAMIC	0.0047UF		2KV
C753		1-162-318-11	CERAMIC	0.001UF	10.00%	500V
C754		1-107-651-11	ELECT	4.7UF	20.00%	250V
C781		1-107-651-11	ELECT	4.7UF	20.00%	250V
C782		1-102-074-00	CERAMIC	0.001UF	10.00%	50V
C783		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C786		1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C787		1-164-645-11	CERAMIC	1000PF	10.00%	500V
			<CONNECTOR>		
* CN701		1-564-510-11	PLUG, CONNECTOR 7P		
* CN703		1-564-508-11	PLUG, CONNECTOR 5P		
CN704		1-695-915-11	TAB (CONTACT)		
CN705		1-695-915-11	TAB (CONTACT)		
			<DIODE>		
D750		8-719-083-20	DIODE PG102R		
D754		6-500-949-01	DIODE 1SS244-T-72 (Except KV-SW21M95)		
D754		8-719-970-83	DIODE HSS82-TJ (KV-SW21M95)		
D755		6-500-949-01	DIODE 1SS244-T-72 (Except KV-SW21M95)		
D755		8-719-970-83	DIODE HSS82-TJ (KV-SW21M95)		
D756		6-500-949-01	DIODE 1SS244-T-72 (Except KV-SW21M95)		
D756		8-719-970-83	DIODE HSS82-TJ (KV-SW21M95)		
D780		8-719-991-33	DIODE 1SS133T-77		
D781		8-719-991-33	DIODE 1SS133T-77		
D782		8-719-036-94	DIODE RD5.6SB-T1		
			<IC>		
IC751		6-703-482-01	IC TDA6108AJF/N1		
			<JACK>		
J751	⚠	1-451-544-11	SOCKET, CRT		
			<COIL>		
L780		1-414-742-21	INDUCTOR	22UH	
			<RESISTOR>		
R713		1-216-864-11	SHORT CHIP	0	
R752		1-216-819-11	METAL CHIP	680	5%	1/10W
R753		1-216-819-11	METAL CHIP	680	5%	1/10W
R754		1-216-819-11	METAL CHIP	680	5%	1/10W
R756		1-219-746-11	METAL	1K	5%	1/2W
R757		1-219-746-11	METAL	1K	5%	1/2W
R758		1-219-746-11	METAL	1K	5%	1/2W
R763		1-260-316-51	CARBON	100	5%	1/2W
R763			(Except KV-SW21M95)			
R763		1-260-087-11	CARBON	100	5%	1/2W
R763			(KV-SW21M95)			
R764		1-260-316-51	CARBON	100	5%	1/2W
R764			(Except KV-SW21M95)			
R764		1-260-087-11	CARBON	100	5%	1/2W
R764			(KV-SW21M95)			
R765		1-260-316-51	CARBON	100	5%	1/2W
R765			(Except KV-SW21M95)			
R765		1-260-087-11	CARBON	100	5%	1/2W
R765			(KV-SW21M95)			
R773		1-260-132-11	CARBON	560K	5%	1/2W
R774		1-215-912-11	METAL OXIDE	150	5%	3W
R780		1-260-131-11	CARBON	470K	5%	1/2W
R781		1-243-950-71	METAL OXIDE	0.56	5%	2W
R781			(Except KV-SW21M80)			
R781		1-243-950-21	METAL OXIDE	0.56	5%	2W

C J(KV-SW21M95)

REF NO.	PART NO.	DESCRIPTION		REMARK	
R781		(KV-SW21M80)			
R783	1-260-316-51	CARBON	100	5%	1/2W
R783		(Except KV-SW21M95)			
R783	1-260-087-11	CARBON	100	5%	1/2W
R783		(KV-SW21M95)			
R794	1-249-377-11	CARBON	0.47	5%	1/4W
R795	1-260-352-11	CARBON	100K	5%	1/2W
		<VARIABLE RESISTOR>			
RV750	1-241-656-21	RES, ADJ, METAL FILM 110M			

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*	A-1119-145-A	MOUNTED PWB, J (KV-SW21M95)
		**********
		<CONNECTOR>
* CN3400	1-564-518-11	PLUG, CONNECTOR 3P
		<DIODE>
D3400	8-719-982-19	DIODE MTZJ-30A
D3401	8-719-982-19	DIODE MTZJ-30A
		<JACK>
J3400	1-694-467-11	TERMINAL, PUSH (2P)

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<ACCESSORIES AND PACLKING MATERIALS>
****

	1-417-151-51	MATCHING TRANSFORMER, ANTENNA (KV-SW21M20/M80)
	1-501-730-41	ANTENNA, TELESCOPIC (KV-SW21M20/M80)
*	2-589-731-01	CUSHION, LOWER
*	2-589-732-01	CUSHION, UPPER (Except KV-SW21M95)
*	2-594-165-01	CUSHION, UPPER (REAR) (KV-SW21M95)
*	2-594-166-01	CUSHION, UPPER (FRONT) (KV-SW21M95)
*	2-645-637-01	INDIVIDUAL CARTON (KV-SW21M20)
*	2-591-334-02	INDIVIDUAL CARTON (KV-SW21M80)
*	2-594-164-02	INDIVIDUAL CARTON (KV-SW21M95)
	2-645-638-11	MANUAL(FOLDING), INSTRUCTION (KV-SW21M20)
	2-649-777-11	MANUAL(FOLDING), INSTRUCTION (KV-SW21M80)
	2-633-246-12	MANUAL, INSTRUCTION (KV-SW21M95)
*	4-039-372-01	BAG, PROTECTION (KV-SW21M80/M95)
*	4-079-510-01	BAG, PROTECTION (KV-SW21M20)
	2-637-162-01	BAND, HOLD
	2-635-703-01	CLIP
	2-651-491-01	SCREW SPECIAL
	1-829-582-11	CORD WITH CONNECTOR (KV-SW21M20)
	1-829-583-11	CORD WITH CONNECTOR (KV-SW21M20)

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<REMOTE COMMANDER>
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1-479-379-11	REMOTE COMMANDER (RM-GA002)
4-084-290-01	REMOTE COMMANDER BATTERY COVER

Sony Corporation
Sony EMCS Malaysia Sdn. Bhd.
Visual Products

9-872-836-02

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